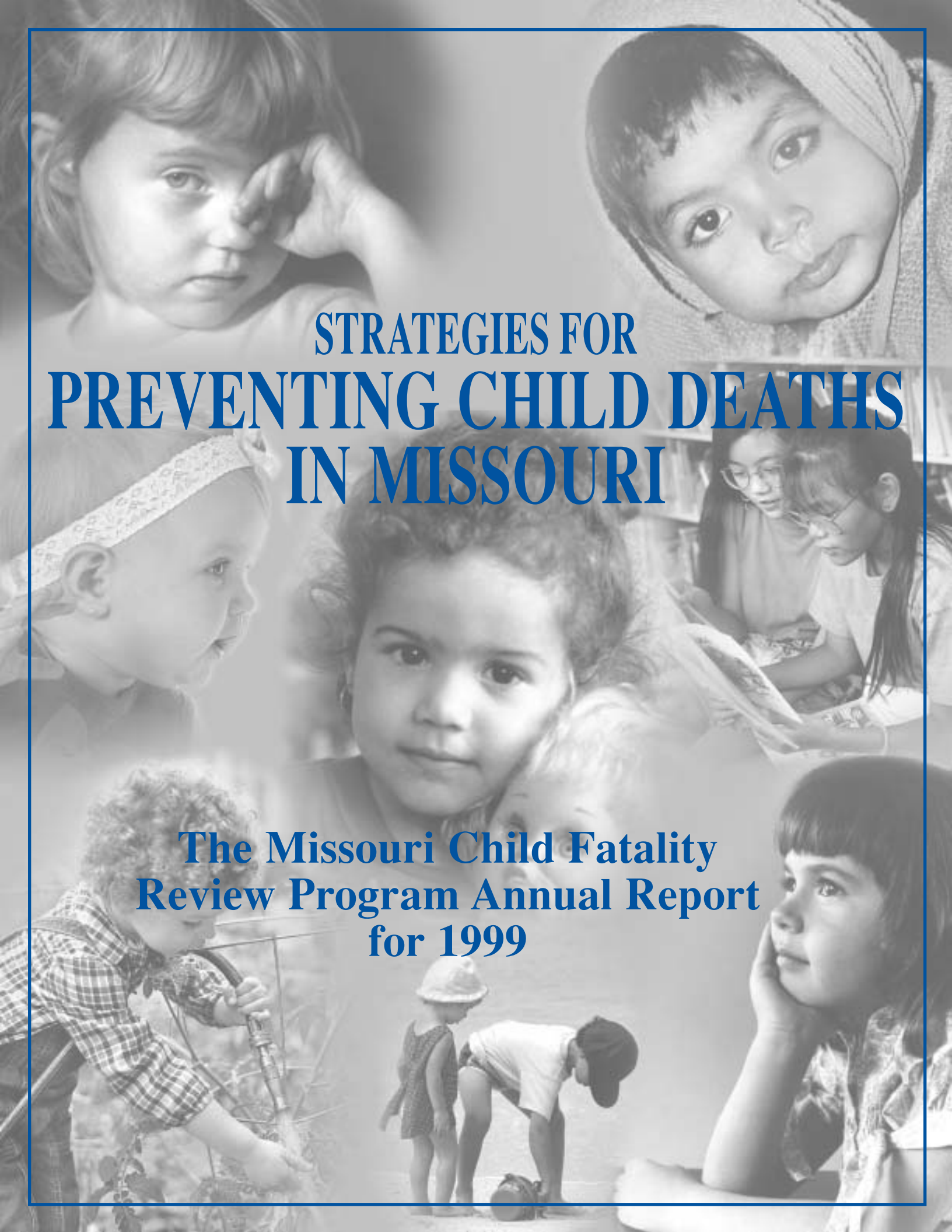

STRATEGIES FOR PREVENTING CHILD DEATHS IN MISSOURI

The Missouri Child Fatality Review Program Annual Report for 1999

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Strategies for
Preventing Child Deaths in Missouri

The Missouri Child Fatality Review Program
Annual Report for 1999

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Published December 2000

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December 1, 2000

Dear Friends:

1999 was a landmark year for the State Technical Assistance Team (STAT). The Team was relocated to the Division of Legal Services and, in the summer of 1999, a Child Fatality Task Force was appointed to examine the information that had been gathered since the implementation of legislation creating local Child Fatality Review Program in January 1992. It was the goal of the Task Force to assess the progress of implementation of the law and identify any need for change.

The intent of the Child Fatality Review Program is to **accurately** identify the reasons children die in Missouri. The 1999 Task Force recommended an intensified focus be directed at methods of **preventing** child deaths. One way to prevent child deaths is timely dissemination of information and sharing of known, effective prevention strategies. With this in mind, the format of the Annual Report has been revised to include specific prevention research and recommendations that address factors contributing to the deaths of Missouri children. This report will be distributed to a broad list of individuals and entities as mandated by law.

Task Force recommendations were incorporated in Senate Bill Nos. 757 and 602 which became effective August 28, 2000. Thanks to the Senate and House sponsors, Senator Joe Maxwell and Representative May Scheve, and to both Houses for the support given to this bill, and to Governor Mel Carnahan and his staff for their efforts in improving the circumstances of children in Missouri.

In 1999, Gary Stangler also appointed a new State Child Fatality Review Panel. We are grateful for the continued commitment of those caring individuals that participated in the Task Force, and also for those serving on past and current State Child Fatality Review Panels.

Many local child fatality review panels contributed to the information contained in this report. Without their diligent commitment to this project, the strides we have made would not be possible.

Sincerely,

Mary J. Browning
Director

This report reflects the work of many dedicated professionals throughout the state of Missouri. Through better understanding of how and why children die, we strive to improve and protect the lives of Missouri's youngest citizens. We will always remember that each number represents a precious life lost. We dedicate this report to these children and their families.

Governor Mel Carnahan
1934 - 2000

In the wake of his tragic and untimely death, Governor Mel Carnahan leaves a lasting legacy to the children of Missouri. Because of his leadership, Missouri's children are healthier, safer and better educated.

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MISSOURI CHILD FATALITY REVIEW PROGRAM

The Problem

Despite an increasing awareness of severe violence against children, very little was known in the past about fatal child abuse and neglect. In the late-1980 s, Missouri researchers discovered that many fatal child injury cases were inadequately investigated and that many children were dying from common household hazards with inadequate supervision. Many cases of fatal abuse and neglect went undetected, misclassified as natural deaths, accidents or suicides. The information necessary for a thorough investigation of a child death was distributed among agencies which could not share records.

Missouri s response

House Bill 185 was passed during the 1991 legislative session and implemented in January 1992. With this legislation, Missouri initiated the most comprehensive child fatality review process in the nation. It requires that every county in Missouri establish a multi-disciplinary panel to examine the deaths of all children 17 and under. If the death meets specific criteria, it is referred to the county s multi-disciplinary child fatality review panel.

Of all child deaths in Missouri, about 1,200-1,300 deaths annually, approximately one-third merit review. To come under review, the cause of the child s death must be *unclear*, *unexplained, or of a suspicious circumstance*. All sudden, unexplained deaths of infants one week to one year of age are required to be reviewed by the panel. All such deaths require an autopsy by a child death pathologist.

This review process has resulted in better investigation, more timely communication, inproved training, technical assistance and standardized data collection that allows us to know much more about how our children die, the circumstances in which they die and who may be responsible.

The Child Fatality Review Panel

The county panel system expands and refines the traditional coroner-medical examiner system of reporting and investigating child deaths. But the unique attribute of the panel system is that *all child deaths are evaluated*, and those requiring it will be reviewed by a community panel. Panels are made up of representatives from at least seven disciplines each bringing their own expertise and skills to the case. The core membership for each county includes:

- Coroner/medical examiner
- Prosecutor
- Law enforcement
- Public Health
- Juvenile Officer
- Division of Family Services
- Emergency Medical Services

Each panel can call upon experts from the community on a per-case basis or to sit as a permanent optional member of the panel.

The panels do not act as investigative bodies. Their purpose is to enhance the knowledge base of the mandated investigators and to evaluate the potential service and prevention interventions for the family and community. All meetings, records, and reports remain confidential.

The findings of each panel review are sent to the State Technical Assistance Team (STAT), which supports and implements the Child Fatality Review Program. The panel findings for each case are entered into a database, which is linked to birth and death data, as well as the Division of Family Services Child Abuse/ Neglect Hotline.

The State Child Fatality Review Panel

Missouri statutes provide that a state-level child fatality review panel be appointed by the Department of Social Services. The State Child Fatality Review Panel is convened bi-annually to provide oversight, identify systemic problems and bring concerns to the attention of STAT. The composition of the state panel mirrors that of the county panels; each multi-disciplinary profession is represented.

Program Goals

- Maintaining a child fatality database for continual surveillance of all child deaths.
- A continuous commitment to train each profession involved in the investigation of child fatalities.
- The identification, support and implementation of state and local prevention initiatives that respond to identified risks to children.

MISSOURI DIVISION OF LEGAL SERVICES STATE TECHNICAL ASSISTANCE TEAM

Multi-disciplinary Trainers/Investigators of Child Abuse

The State Technical Assistance Team (STAT) implements and supports the Child Fatality Review Program protocols and policies. STAT has evolved over time to become a children s response unit of integrated, managed services. STAT trains and maintains 115 county-based child fatality review panels, organizes and develops multi-disciplinary teams to investigate serious/fatal physical and sexual abuse, child neglect and child exploitation and serves as an information resource to the entire investigative community.

STAT program responsibilities include the following areas:

Child Fatality Review Program

- Develops, trains and maintains 115 county-based child fatality review panels.
- Provides services and assistance, as needed.
- Collects and analyzes information and data that identify patterns or risks.
- Identifies and promotes evidence-based prevention strategies that reduce child injuries and fatalities.

Criminal Investigation/Training

- Provides expertise and direct assistance to multi-disciplinary teams in the investigation of serious physical and sexual abuse involving children.
- Provides training, investigative assistance and evaluation of evidence in crimes involving computers, children and the Internet.
- Organizes, supports and trains county-based multi-disciplinary child abuse teams.

Information Resource

Within the limits of its resources, STAT will provide technical information concerning any serious children s event to multi-disciplinary teams or members:

- Medical consultations regarding injuries, illnesses or sexual abuse.
- Medical research/literature searches to substantiate or refute initial findings.
- Prosecution support.

All requests for technical medical consultation or research must be directed to STAT for authorization. Any costs incurred, other than those specifically approved by STAT, will be the responsibility of the requesting agency.

Referrals to STAT:

- The Child Abuse and Neglect Hotline, (800) 392-3738, should always be used to report child fatalities and incidents of suspected child abuse and neglect.

- If requested by a local investigative team, STAT will arrange and provide training, phone consultation and, if necessary, direct assistance in an investigation. STAT s goal is to enhance the skills of the local investigative team. When STAT s assistance is needed, it should be requested as soon as possible. STAT will respond to all inquiries concerning child fatalities, child sexual abuse, child abuse and neglect and child exploitation.

- Requests may come from local multi-disciplinary teams, DFS, law enforcement agencies, juvenile officers, prosecutors and other disciplines involved in children s events in any county.

- Incoming requests are screened based on the following criteria:

  The investigation and review of child fatalities.

  Child sexual abuse, child abuse and neglect and child exploitation reports involving:

  -Multiple victims/perpetrators ;

  -Repeat offender/alleged perpetrator; and

  -Complex cases including, but not limited to, death or serious injury, cases involving a potential conflict, limited resources, expertise or manpower.

MISSOURI STATE TECHNICAL ASSISTANCE TEAM, 1999

Mary J. Browning, Director

Stan Crocfer, Investigations Administrator

Rodney Jones, Computer Investigations Coordinator

Suzanne McCune, Prevention Coordinator

Susan Stoltz, Training Coordinator

Linda Rapps, Data Coordinator

Tommy Capps, Investigator III

Marion McMillan, Investigator III

Dan Stewart, Investigator III

Larry Wyrick, Investigator III

Mike Stern, Investigator II

Jerry Holder, Urban Case Coordinator

Debbie McDermott, Urban Case Coordinator

Holly Otto, Investigator I

Theresa Murrell, Data Clerk

Julie Ritter, Clerical Support

PROGRESS IN ACHIEVING PROGRAM GOALS

In 1991, Missouri initiated the most comprehensive child fatality review process in the nation. It was designed to improve investigations, assure more timely communication, improve training, provide technical assistance and standardize data collection for all child deaths. Because of this system we now have much more knowledge about how and why children are dying, and who may be responsible. Following is a summary of what we believe to be some of the most significant achievements:

- The impetus for the Child Fatality Review Program was to provide a more accurate identification and reporting of childhood fatalities. In 1992, investigators confirmed 84 percent more child deaths from abuse and neglect than the traditional system had found in 1989.

- The STAT data collection system is unique in that multiple agencies share information from official sources through a series of data exchanges. In 1999, data systems were developed in-house to allow for more timely and detailed response to information needs.

- A report is published annually which details the data findings of the county-based panels. In the last eight years, the deaths of more than 3,000 children have been examined through the review process.

- Prevention efforts have been upgraded to a management-level responsibility to ensure a more coordinated response. Partnerships have been formed with government and private agencies to maximize statewide prevention efforts. Such agencies include Missouri Children s Trust Fund, State Department of Health, Safe Kids and SIDS Resources.

- Working closely with federal, state and local agencies, STAT field investigators have provided expert assistance in 664 cases of serious child abuse/neglect, child sexual abuse, child exploitation and child fatality since 1992.

- The team has played a significat role in specialized investigative assistance of computer crimes involving children. Accomplishments include several high-profile, national investigations where STAT staff took the lead role.

- Training has been provided to more than 15,000 members of multi-disciplinary teams investigating serious physical and sexual abuse in Missouri since 1992.

MISSOURI'S CHILD FATALITY TASK FORCE

Why a Task Force?
Acknowledging the value of the effort of the last eight years and the need to better utilize the data collected, Department of Social Services Director Gary Stangler convened a broad-based, 20-member Child Fatality Task Force in May 1999, to provide recommendations in three areas:

(1) Develop strategies to prevent child fatalities and serious injury;
(2) Assess child abuse statutes and increase penalties for harming children; and
(3) Intensify investigative efforts and improve training in child abuse and neglect cases.

Task Force Recommendations:
The task force worked from May to August 1999 and made 32 policy and legislative recommendations to Stangler, centered around prevention, crimes and punishment, and training and investigations. Task force recommendations were incorporated in Senate Bills No. 757 and 602, passed during the 2000 legislative session. They were:

Prevention-
Strategies to prevent child fatalities and serious injuries

Administrative Recommendations

* Commission a study to develop a predictive model of fatal child abuse or neglect.
* Develop an outreach strategy to inform child advocates and the general public about child fatalities and how to prevent them.
* Continue to fund, or assist in seeking funding for those programs proven to be effective in the prevention and treatment of child abuse, neglect or exploitation.
* Rename and reformat the State Technical Assistance Team s annual report to include prevention strategies.
* Communicate prevention messages and fatality information to communities by involving organizations such as the Community Partnerships. This includes targeting specific prevention messages to communities where a child fatality has occurred recently.
* Establish a fund for donations to prevent child fatalities.
* Identify and report publicly state and federal funds being spent on child abuse and neglect.
* Conduct a survey of child abuse hotline callers, including mandated reporters, to elicit feedback and suggestions for improving the hotline.
* Support strong mechanisms to encourage use of car restraint systems (seat belts, car seats).
* Implement effective home-visitation programs for high-risk mothers.
* Examine programs aimed at reducing the number and extent of firearm injuries and deaths in children.
* Coordinate a public-education on effective ways of preventing childhood injuries and deaths.

Legislative Recommendations

* Track and maintain information related to **all** child deaths through use of the hotline system.
* Relax confidentiality laws to allow identifying information regarding children who have died or nearly died to be released, at the discretion of the DSS Director.
* Eliminate expungement of unsubstantiated reports.

Crimes and Punishment-
Changes to increase penalties for harming children

Administrative Recommendations

- Encourage police officers to take protective measures by enforcing curfews and picking up truants and getting them into productive programs.

Legislative Recommendations

- Increase penalty for molesting a child under 12 years of age from a class C felony to a class B felony.
- Establish three new crimes for assault against children assault of a child in the first, second, and third degrees to increase penalties for assault when the child is a victim.
- Update crimes related to child pornography to reflect change in technology, including use of the Internet.
- Devote additional resources to improve child pornography investigations.
- Devote additional resources to support prosecution of cases with child victims.

Training and Investigations-
Intensify investigative efforts and improve training

Administrative Recommendations

- Develop informational links for local Child Fatality Review Panels to access sources of funding.
- Maximize the opportunity for multi-disciplinary training through the biennial Child Abuse and Neglect Conference.
- Encourage use of the multi-disciplinary model in investigating serious offenses against children. Offer coordinated training to support this effort, as well as annual training in child protection.
- Establish a new state-level panel or broaden the STAT responsibilities to help local Child Fatality Review panels coordinate training, share prevention information and provide technical assistance for protection of children, in the most difficult cases.
- Report facts of investigations rather than have panels determine if a caretaker failed to supervise a child.
- Develop protocols for investigating child fatalities, child abuse and neglect allegations and make them available to local panels.
- Review existing state regulations governing local panels and determine if amendments are needed.

Legislative Recommendations

- Require the medical examiner, coroner or certifying private physician to report the death of a child to the Child Abuse Hotline within 24 hours of the death.
- Clarify the State Technical Assistance Team s duties related to child abuse, neglect and exploitation.
- Mandate local teams to conduct a review when established criteria are met.
- Change the law to allow recanted statements to be admissible in court cases involving abuse and neglect of a child.

These recommendations were directed toward ensuring that those responsible for the death of a child would be held accountable and that young citizens would be protected from child abuse and neglect.

Many of the legislative recommendations of the task force were incorporated into Senate Bills 757 and 602, passed by the Missouri legislature in May of 2000. Administrative findings have been incorporated into the functions of the State Technical Assistance Team and into the work of the newly appointed State Child Fatality Review Panel, which held its first quarterly meeting in December 1999.

On behalf of Missouri s children, the Department of Social Services, Division of Legal Services and the State Technical Assistance Team gratefully acknowledge the work and dedication of the 1999 Child Fatality Task Force:

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Deputy Medical Examiner
Kansas City

Mary J. Browning, Director
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University of Missouri
Columbia

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Children s Mercy Hospital
Kansas City

Bob Geigel
St. Louis City Fire Department, EMS
St. Louis

Ted Boehm
Sheriff s Department
Columbia

Truly Applegate
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Springfield

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Vienna

Mike Fusselman
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Moberly

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Moniteau County Prosecutor
California

Jim Nunnelly
Jackson County Prosecutor
Kansas City

Gary Carmack
Pulaski County Coroner
Waynesville

Lt. Jim Richardson
St. Louis Metropolitan Police Dept.
St. Louis

Al Nilges
Lake Ozark

Bill Lawson
Sikeston

SECTION ONE:
Missouri Incident Fatalities

In reviewing this report, the reader should be aware of some important definitions and details about how child deaths are reported and certified in Missouri, summarized here: (Please refer to Appendix 6, Definitions of Important Terms and Variables, for additional information.)

- "Missouri Child Fatalities" refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness or injury occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and brought to a Missouri hospital, where he or she subsequently dies, would be counted as a Missouri Child Fatality. This death would be reported to the Child Fatality Review Program on a Data Form 1, Section A, as an out-of-state event.)

- "Missouri Incident Fatality" refers to a *fatal injury, event, or illness,* which occurs *within the state of Missouri*. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the *fatal injury, event, or illness* occurred.

- *Every* Missouri incident child fatality is reviewed by the coroner or medical examiner and the chairperson for the county Child Fatality Review Panel. The findings of that review are reported on the Data Form 1.

- Any child death that is *unclear, unexplained, or of a suspicious circumstance, and all sudden, unexplained deaths of infants one week to one year of age* are required to be reviewed by a county-based Child Fatality Review Panel. Panel members receive annual training on the investigation of child deaths. Panel findings are reported on the Data Form 2.

- **Multiple-Cause Deaths:** *Cause of death* is a disease, abnormality, injury or poisoning that contributed directly or indirectly to death. However, a death often results from the combined effect of two or more conditions. Because the Child Fatality Review Program is focused on the prevention of child fatalities, the precipitating events are of particular concern. Therefore, deaths are categorized according to the *circumstances of the death,* which may not be the immediate cause of death listed on the death certificate. (An example would be a child passenger in a car that runs off the road and lands in ditch full of water; the immediate cause of death is listed on the death certificate as drowning, but the precipitating event was a motor vehicle accident. This death would be reported in the Motor Vehicle Fatalities section, with a footnote indicating that the death certificate lists drowning as the immediate cause of death.)

- The Child Fatality Review Program data management unit links data collected on the Data Form 1 and Form 2 with the State Department of Health birth and death data. Every attempt is made to reconcile the two systems; however, in some cases, crucial data components are incomplete and are noted, as appropriate.

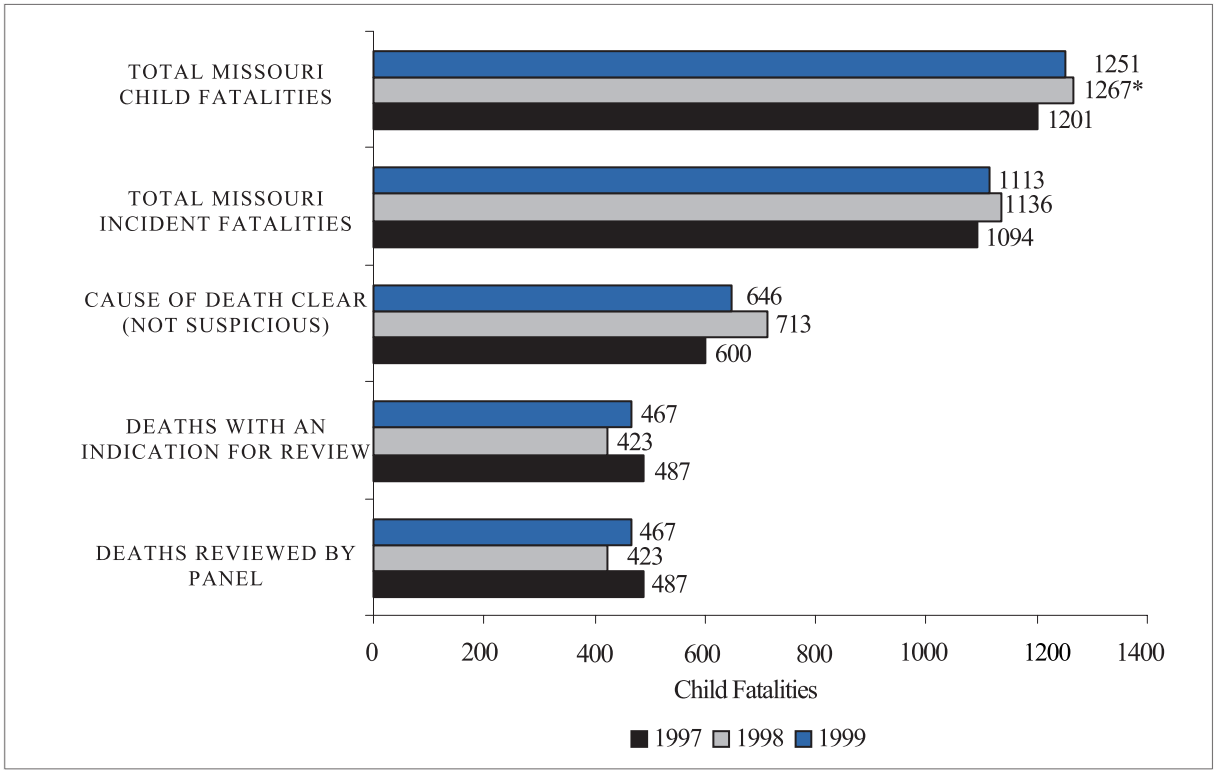
- All deaths included in this 1999 Annual Report occurred in calendar year 1999. Some of the cases reviewed may not have been brought before a county panel until the year 2000.

- In some cases, panels did not complete all of the information requested on the data form.

Summary of Findings,
Missouri Incident Fatalities, 1999

In 1999, **1251** children age 17 and under died in Missouri. Of those deaths, **1113** were determined to be Missouri incident fatalities and, therefore, subject to review by the coroner or medical examiner. The remaining **467** had an indication for review by a county Child Fatality Review Panel and all were reviewed.

Figure 1. Missouri Child Fatalities vs. Missouri Incident Fatalities



* Missing death certificates were included in the fatality count of 1998.

Figure 2. Missouri Incident Fatalities by Age

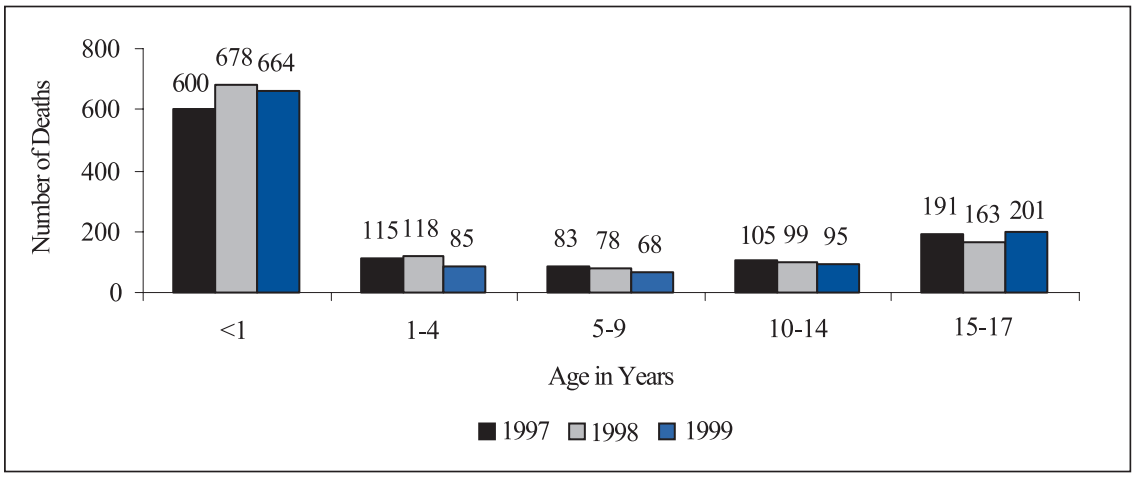


Figure 3. Missouri Incident Fatalities by Sex and Race

Sex	1997	1998	1999	Race	1997	1998	1999
Female	447	479	440	White	774	781	770
Male	645	657	673	Black	298	346	328
Unknown	2	0	0	Other	22	9	15
	1,094	1,136	1,113		1,094	1,136	1,113

Figure 4. Missouri Incident Fatalities by Cause

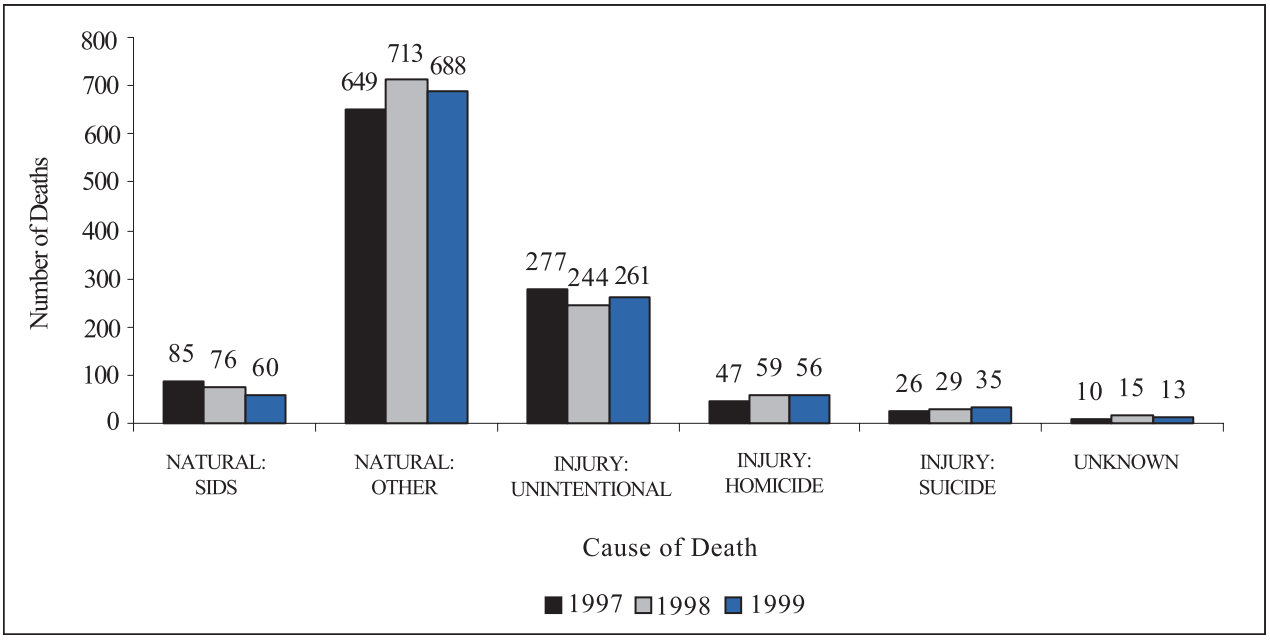
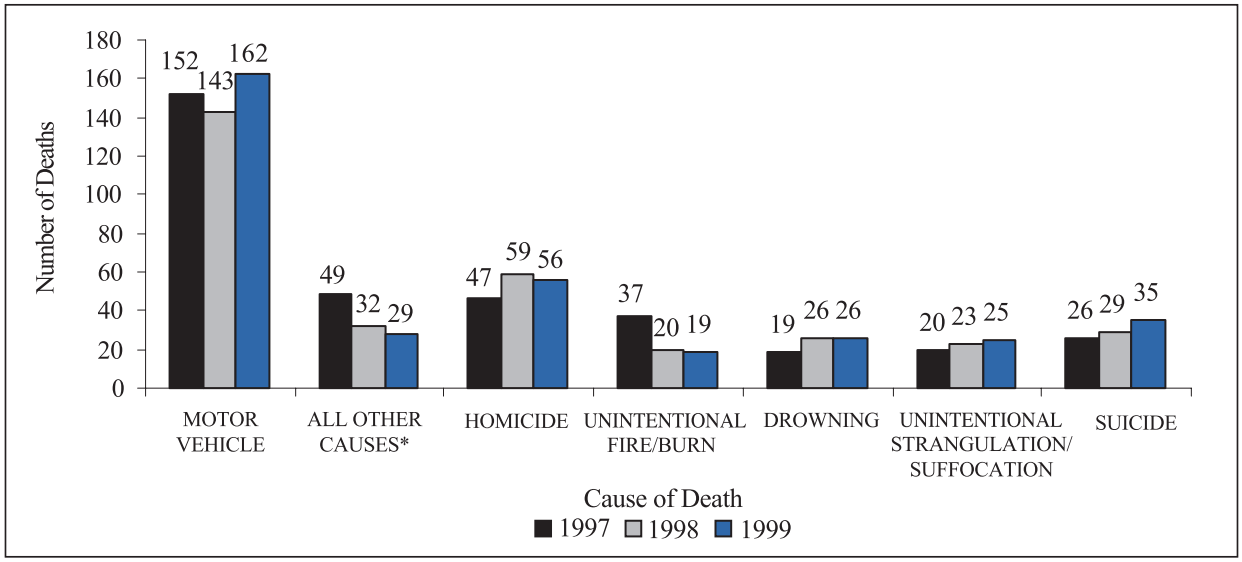
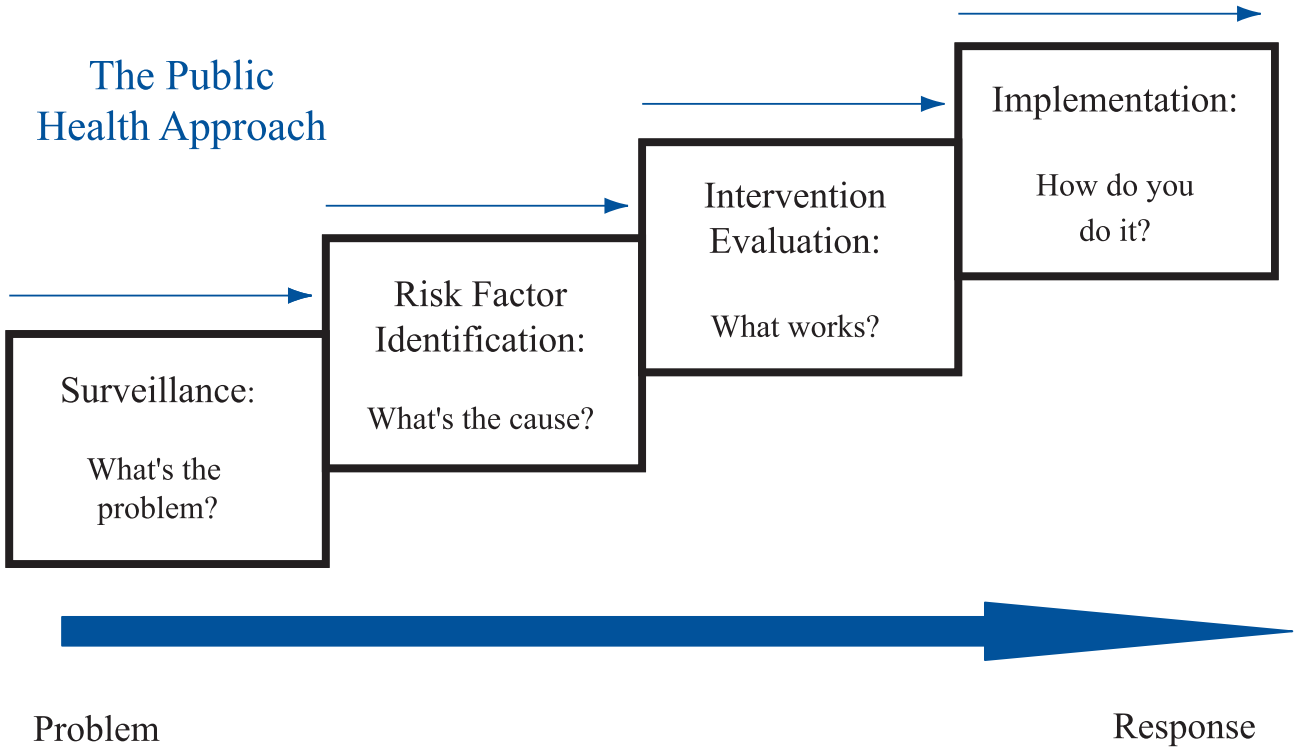


Figure 5. Leading Cause of Injury Deaths



SECTION TWO:
Prevention of Child Fatalities:
General Principles

There is a growing recognition among professionals in the field of injury prevention that the public health tools and methods used effectively against infectious and other diseases can also be applied to injury prevention. As a result, attention is given to the *environment* and to *products* used by the public, as well as individual *behavior*. Public health offers tools and expertise that can effectively organize prevention interventions. The public health approach to injury reduction draws on expertise in surveillance, data analysis, research, public education and intervention. The diagram that follows provides a prevention model for the Child Fatality Review Program.



Public Health Approach. *Source*: Reprinted from http://www.cdc.gov/ncipc/upb-res/mr930.htm

Step #1, the on-going *surveillance* of child fatalities in Missouri has produced a base of reliable data that does not exist anywhere else in the United States. This data is available to *define significant risk factors (step #2)*. The next steps are: (#3) to identify *evidence-based prevention strategies* that are proven effective, and (#4) to *facilitate the implementation of these strategies where they do not currently exist*.

Following is an overview of a *vision for prevention of child fatalities* for Missouri, including specific, on-going activities to coordinate and facilitate prevention at statewide and local community levels:

A vision for prevention:

- It is the responsibility of the Missouri Child Fatality Review Program to use the data available to drive and guide programs and policies that are proven effective as preventive measures. Objectives of a coordinated, comprehensive approach to prevention can be accomplished simultaneously: (1) Raise public awareness about child fatalities and their prevention. (2) Enlist the support of community leaders and policy makers. (3) Educate professionals. (4) Encourage collaborative efforts with state and local agencies and organizations with a history of concern for children. In this way, *prevention of child fatalities is integrated into all community and state systems that provide services and support to children and families.* The 1999 Child Fatality Task Force recommendations and their implementation have propelled the program in this direction.

Facilitating a statewide response:

- This 1999 Child Fatality Review Program Annual Report is the first of its kind for Missouri, in examining leading causes of death among Missouri children. Each section includes *specific prevention recommendations* for parents and other caretakers, for community leaders and policy makers, for professionals and/or members of county Child Fatality Review Panels. Each section also includes sources for research information and sources for evidence-based prevention programs and materials with proven effectiveness.

- Graphs provide details of prominent *risk factors* for each type of death, such as age, sex, precipitating events and other conditions, location or activity of the victim.

- *Representative cases* for each category of child death are included, in order to demonstrate the circumstances of the death and to identify potential prevention messages.

- This report will be disseminated widely to various agencies and organizations on federal, state and local levels. The report will also be accessible on the Internet at the STAT web page. Many agencies and child protection organizations have links to the website. Additionally, the report will be distributed at STAT training programs and presentations, to all agencies represented by county CFRP panels and the State Child Fatality Review Panel, as well as through direct mail. Other stakeholders that will have access to this report include corporations with an interest in injury prevention, such as insurance companies, schools and universities, home visiting agencies, associations and coalitions with a child injury prevention focus, and law enforcement agencies.

- The Child Fatality Prevention page of the STAT website has been updated and upgraded, with *links* to reliable research and prevention sites on the Internet. Fact sheets on leading causes of child death and serious injury are available for printing from the Prevention page. **(www.dss.state.mo.us\stat\stat.htm)**

- Also included on the website are updates on prevention *partnerships and collaborations* between the Child Fatality Review Program, and other public and private agencies in various areas, including SIDS, suicide, drowning, fire, and child abuse, including Shaken Baby Syndrome. Some of the lead statewide agencies in these areas include SIDS Resources, the Department of Health, Bureau of Maternal and Child Health, Bureau of Disability Prevention and

Injury Control, the Division of Family Services, the Division of Fire Safety, the Division of Highway Safety, and Children s Trust Fund.

- The State Child Fatality Review Panel provides oversight for the Child Fatality Review Program, with special emphasis on identification and implementation of evidence-based prevention strategies.

Facilitating a community response:

- In order to facilitate a timely response within the community, packets with fact sheets and specific prevention messages, prevention materials and sample press releases are sent to the county CFRP panel chairperson as soon as STAT is notified of an injury death.

- The Child Fatality Review Program Annual Report, along with *fact sheets* pertaining to specific causes of death and their prevention, printed information for release to local media by panel spokespeople, and prevention materials, are available for printing from the website (www.dss.state.mo/stat/index.htm) or through the STAT office (800-487-1626).

- Over 800 county Child Fatality Review Panel members and other professionals in related fields, participated in annual training in 1999, which included a two-hour block of instruction on prevention of child fatalities.

- Training on child fatalities and prevention is available through the STAT Prevention Coordinator. Throughout 1999, training was provided to more than 150 professionals around the state on prevention of child fatalities, prevention of child abuse, the Child Fatality Review Program, responding to the media, SIDS and accidental suffocation, funding and implementing a Safe Crib Project, and Shaken Baby Syndrome.

Risk Factors:
Who Is at Risk? When and Where?

Understanding which children are most vulnerable to death and serious injury, can guide and maximize prevention efforts by identifying strategies proven effective with similar populations and targeting that group for prevention.

"To be effective, any injury prevention strategy must first examine the link between developmental stage and cause of injury."

-Children's Safety Network, Maternal and Child Health Bureau

Growth and developmental factors, as well as *behavioral factors* make *young children* more vulnerable to injury than adults.

• *Young children* are more vulnerable to injury because of unique physical characteristics related to growth and development. For example, the head of a young child is large and heavy, relative to their total body weight. Thus, the head is the first part of the body to hit or go through a windshield in a motor vehicle crash. Because of this large head, small children are top-heavy; they are apt to drown in a bucket of water.

Young children are smaller, their bones are more fragile and easily choke on pieces of food or small parts of toys. their airways are small; they can Children s muscle dexterity and strength, motor skills and reflexes are not developed. Their intellectual skills are not fully developed. Children also have a restricted field of vision. Children are very inquisitive and trusting of their environment. They tend to eat or drink anything within their reach; they trust cars not to hurt them.

- *Teens* are known for engaging in *risk-taking behaviors* that contribute to death and serious injury, such as refusing to wear a seatbelt, drinking and driving, riding with drinking drivers, using drugs, and carrying weapons.

- There is a *seasonality* to certain types of death. Drowning and motor vehicle accidents increase dramatically during the warm-weather months, when children are on summer vacation and playing in and around various bodies of water. Because home heating is a leading cause of residential fires, there are more fire deaths during the winter.

- For all injury causes, *males* are consistently at greater risk.

- Children who are victims of *chronic neglect* are at great risk of injury and death.

Information about factors that place children at risk of death and injury, can also provide specific environmental or product changes that lead to a significant risk reduction. Some of the more obvious include smoke detectors in homes where children are living, installation of four-sided fencing around swimming pools, improvements to highways with high fatality incidence, and use of seat belts and child safety seats.

A Summary of Findings: Prevention

A *preventable death* is defined as a death in which awareness/education by an individual or the community may have changed the circumstances that lead to the death. Panels were asked to report their conclusions and activities regarding preventability for each death reviewed on the Data Form 2. Responses from completed data forms follow:

To what degree was this death believed to be preventable?	
Not at all	91
Possibly	142
Definitely	180
Unknown	54

Primary risk factors in the child's death			
Medical	119	Environmental	84
Social	81	Product safety	24
Economic	36	Drugs or alcohol	52
Behavioral	192	Other	70

Prevention responses:
Panels were also asked to report their conclusions and activities regarding prevention responses for each death. Of the panels who completed this section of the data form, these were the responses:

Prevention activities proposed since death			
Legislation, law or ordinance	27	Consumer product safety	21
Community safety project	53	News services	43
Public forums	24	Changes in agency practice	17
Educational activities in school	64	Other programs/activities	41
Educational activities in the media	62	None	241
Target populations			
Children	54	Parents/caregivers	54
General public	70	Child protection professionals	25
Others	13		

There are three levels of prevention activities that reflect the audience targeted to receive the message or service:

- *Primary prevention measures* are designed to promote the general welfare of all children and families. They are directed at the general population with the goal of preventing the injury or death before it occurs. An example of a primary prevention measure in the case of bicycle injuries would be bicycle helmet legislation, coupled with a public awareness and education campaign, and encouraging children to always wear helmets when riding bicycles.

.

- *Secondary prevention measures* are designed to help identify children who are at risk of injury or death and provide education/awareness services to them. Secondary prevention activities target children at risk of injury to alleviate conditions associated with a particular type of injury. A secondary measure to prevent head injury among children without bike helmets would be an event during which children are fitted with helmets, provided at little or no cost, along with printed prevention information to take home.

- *Tertiary prevention* directs services to families where a child death or serious injury has occurred to reduce the negative consequences of the event. In the case of Child Fatality Review Panels, follow-up services are directed to the family and surviving siblings, with the goal of strengthening the family and protecting other children.

Child Fatality Review Panel service responses:

In order to protect surviving children and strengthen the family, Child Fatality Review Panels are asked to consider what *tertiary* services would be helpful and ensure that the appropriate referrals are made through member agencies or related organizations. Following is a summary of CFRP panel responses:

Services provided	
Bereavement counseling	118
Economic support	10
Funeral arrangements	36
Emergency shelter	6
Mental health services	13
Social services	118
Health care	26
Legal services	13
Other	21
No services	123

The prevention recommendations that appear in this 1999 CFRP Annual Report involve *primary* and *secondary* interventions, based on current research.

SECTION THREE:
Illness/Natural Cause Deaths

"A simple child,
That lightly draws its breath,
And feels its life in every limb,
What should it know of death?"

-William Wordsworth

All Illness/Natural Cause Deaths

Illness/natural causes were responsible for the deaths of **688** Missouri children in 1999, representing 62% of all Missouri incident fatalities.

Illness/natural cause deaths include prematurity, congenital anomalies, infection, and other conditions. Sudden Infant Death Syndrome (SIDS), a natural death, is discussed seperately in the section that follows.

Figure 6. Illness/Natural Cause Deaths by Age

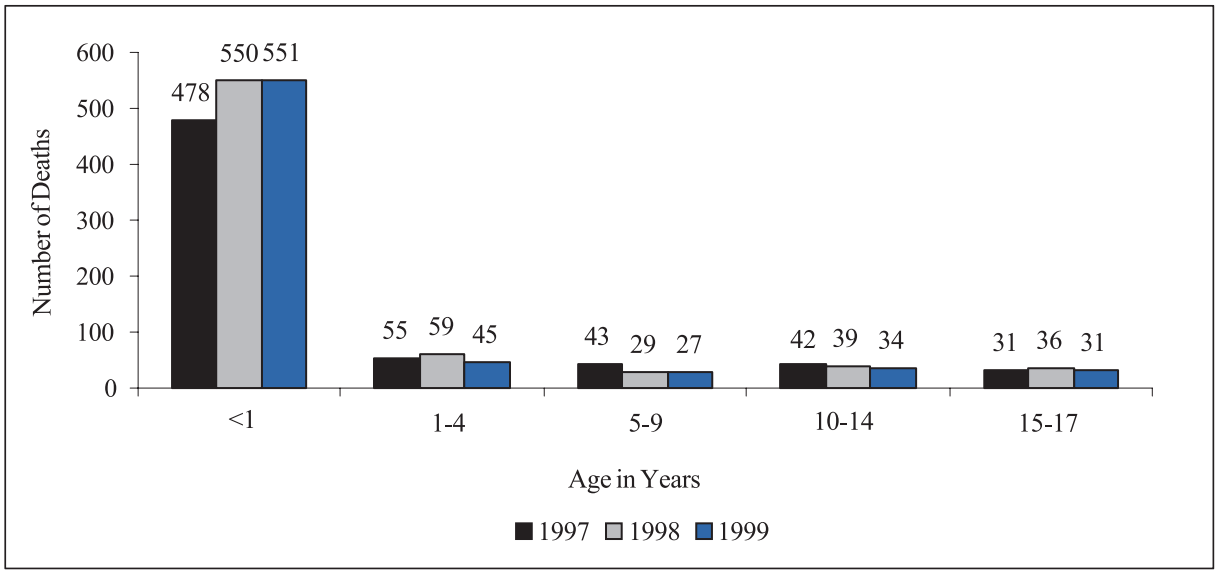


Figure 7. Illness/Natural Cause Deaths by Sex and Race

Sex	1997	1998	1999
Female	288	314	296
Male	359	399	392
Unknown	2	0	0
	649	713	688

Race	1997	1998	1999
White	455	474	461
Black	182	232	217
Other	12	7	10
	649	713	688

Infants less than one year of age comprised the majority (80%) of illness/natural cause deaths in 1999 with **551**. Of those, **343** (62.3%), occurred within the first three days of life; **291** (52.8%) of those occurred within 24 hours of birth.

Figure 8. Children Age Three Days or Less That Died of Illness/Natural Causes

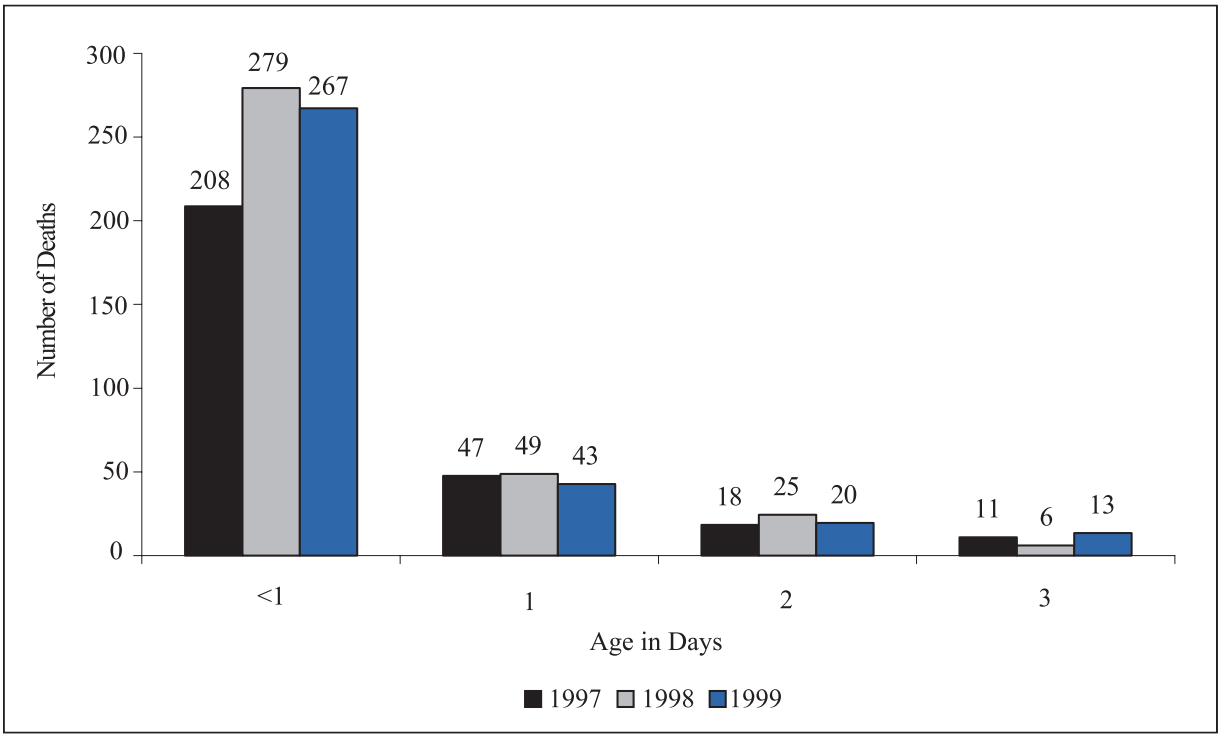


Figure 9. Children Age One Year or Less That Died of Illness/Natural Causes by Sex and Race

Sex	1997	1998	1999
Female	213	237	233
Male	263	313	318
Unknown	2	0	0
	478	550	551

Race	1997	1998	1999
White	325	355	361
Black	143	191	182
Other	10	4	8
	478	550	551

Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

Age at death		Gestational age at birth	
0 - 24 hours	291	<25 weeks	214
24 - 48 hours	26	25 - 30 weeks	75
48 hours - 6 weeks	120	30 - 37 weeks	76
6 weeks - 6 months	64	>37 weeks	64
6 months - 1 year	22	Unknown	259
Unknown	165		

Birth weight in grams (approximate lbs/oz)		Multiple births	
<750 (<1 lb 10 oz)	222	Yes	82
750 - 1,499 (1 lb 10 oz - 3 lbs 5 oz)	60	No	409
1,500 - 2,499 (3 lbs 5 oz - 5 lbs 5 oz)	39	Unknown	197
>2,500 (>5 lbs 5 oz)	100		
Unknown	267		

Medical complications during pregnancy		Smoking during pregnancy	
Yes	12	Yes	10
No	13	No	9
Unknown	663	Unknown	649

Drug use during pregnancy		Alcohol use during pregnancy	
Yes	9	Yes	5
No	13	No	15
Unknown	666	Unknown	668

"The infant mortality rate has declined steadily during the last decade, due, in part to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision."

-*Kids Count Missouri,* Citizens for Missouri's Children and Children's Trust Fund

Notes for the reader:
In sections that follow, you will see *Representative Cases* for each category of child death. These are actual 1999 cases, reviewed by county CFRP panels, that exemplify the type of death, conditions and events that preceded the death and demonstrate, in some cases, how identifiable risk factors affected the outcome.

At the end of each section, you will see *Prevention Recommendations.* These recommendations are based on research by the Child Injury Research Group, Center for Family Medicine Science, University of Missouri, Columbia, prepared for the Missouri Department of Social Services, Child Fatality Task Force in August 1999. Other prevention recommendations are from sources noted.

Additionally, you will see *References and Resources*. These are the sources of research information used in preparing that section. These sources and the prevention resources and materials they offer are also included as a reference for those interested in obtaining more information. Each of the websites listed includes references to specific studies and sources that support their conclusions and recommendations. Please contact the STAT Prevention Coordinator at 800-487-1626 for assistance, training, or more information.

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) was the cause of death of **60** Missouri infants in 1999, representing 8% of all natural cause deaths of infants less than one year of age.

Representative Cases:

- ***Infants should be placed on their backs to sleep.***

A six-week-old female, one of twins, was fed by her mother and placed on her stomach on a pillow to sleep. She was later found facedown in the pillow, not breathing.

- ***The safest place for babies to sleep is in a crib with a firm, tight-fitting mattress.***

A mother came home from work and lay down with her two-month-old male infant in her bed. The baby was placed on his stomach on top of a sheet and two blankets. The exhausted mother awoke sometime later to find the baby unresponsive.

Sudden Infant Death Syndrome (SIDS) is the sudden, unexpected death of an apparently healthy infant under one year of age, which remains unexplained after the performance of a complete postmortem investigation, including an autopsy, an examination of the scene of death and review of the case history. SIDS is a diagnosis of *exclusion*, which means that all other causes of death have been ruled out.

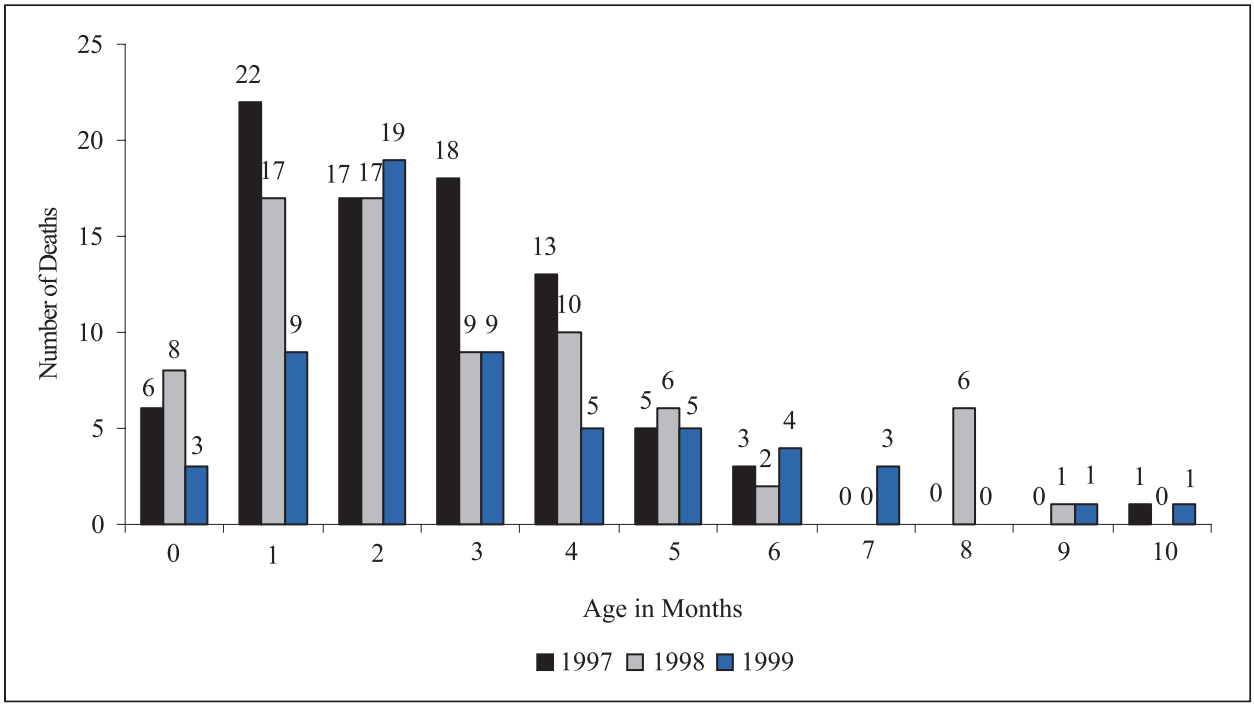
SIDS is:
- The leading cause of death in infants from one month to one year of age, but most common between two and four months of age.
- A death that occurs quickly, usually while the baby is asleep. In most cases, the baby seemed healthy prior to the death.
- Unpredictable and currently, unpreventable.
- A *natural* manner of death.
- A diagnosis that is only used for infants up to one year of age, in Missouri.

What SIDS is not:
- Caused by spitting up, choking or minor illness such as a cold.
- Caused by immunizations.
- Contagious.
- A death that runs in families.
- Child abuse.
- The cause of every sudden or unexpected infant death.

National Incidence of SIDS:

- Age: 90% of SIDS deaths occur before age 6 months. 70% of SIDS deaths occur between 2 and 4 months.
- Season: More SIDS deaths occur in the winter and fall months.
- Population: SIDS affects more males than females. SIDS affects babies of all races, religions and ethnic groups. However, African-American babies are twice as likely to die of SIDS and Native American babies are three times as likely to die of SIDS as Caucasian babies.
- SIDS rates are higher for: low birth weight babies, premature babies, babies whose mothers smoke during and after pregnancy, babies of multiple births, babies born within 18 months of one another, babies of younger mothers.
- SIDS rates are lower for: infants placed on their backs to sleep (see Risk Reduction Recommendations on page 28).

Figure 10. SIDS Fatalities by Age



Note: One child is not included in this chart. Although the cause of death appears to be SIDS, the child was 13 months old.

Figure 11. SIDS Fatalities by Sex and Race

Sex	1997	1998	1999
Female	32	29	24
Male	53	47	36
	85	76	60

Race	1997	1998	1999
White	54	49	34
Black	29	27	25
Other	2	0	1
	85	76	60

Figure 12. SIDS Deaths by Month of Death

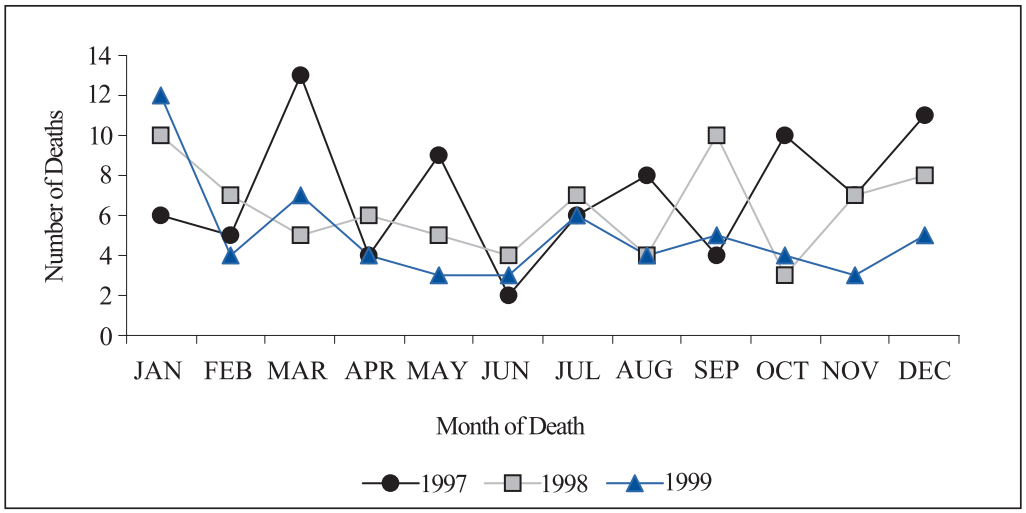
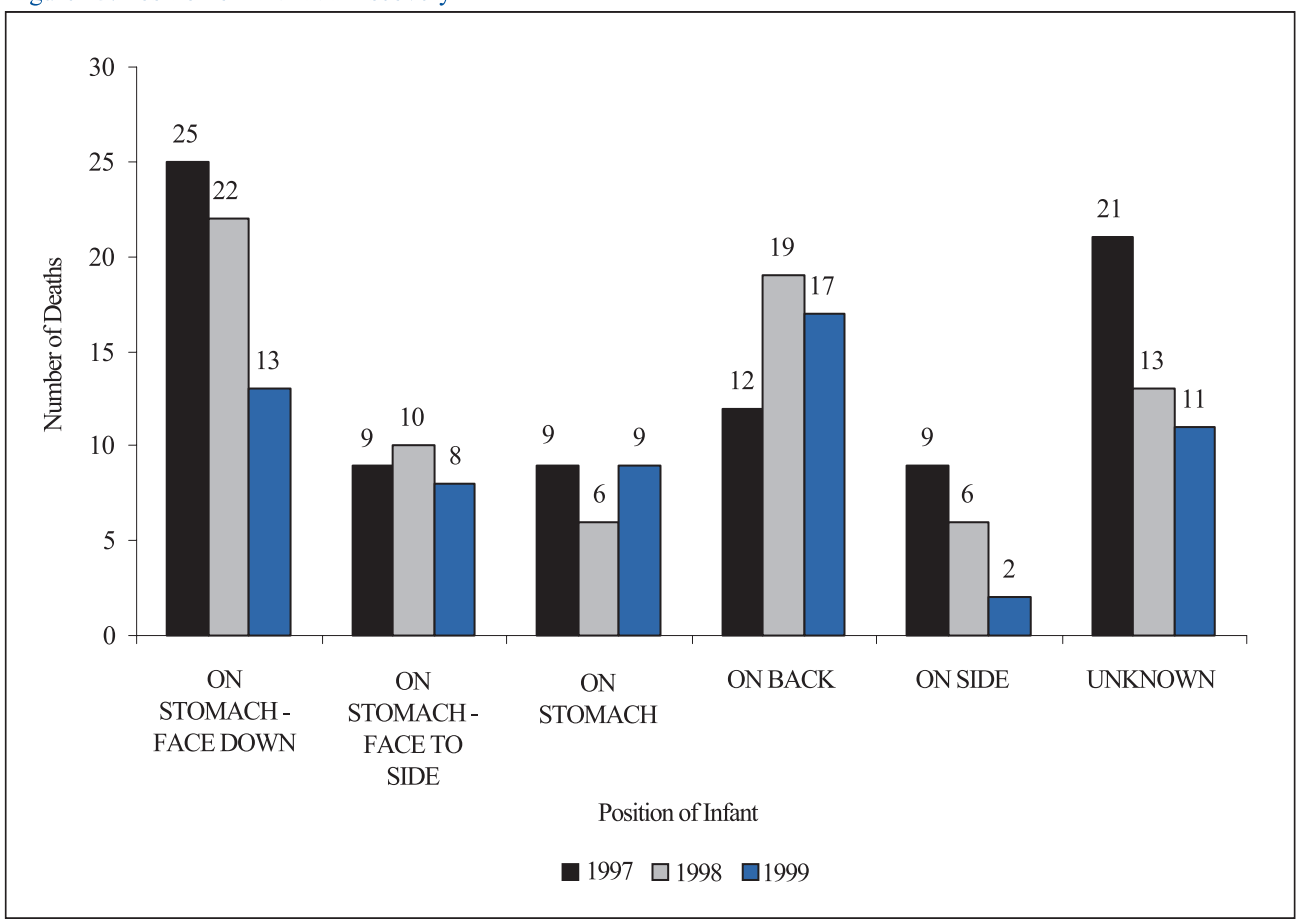


Figure 13. Position of Infant at Discovery



In the United States, SIDS rates have declined from 1.3 per 1000 live births in 1991 to .77 in 1997. SIDS rates have declined in Missouri from 1.58 per 1000 live births in 1993, to 1.15 in 1997. The rate of SIDS has continued to decline since the introduction of the Back-to-Sleep campaign by the American Academy of Pediatrics in 1994.

Figure 14. SIDS Rate 1994-1999

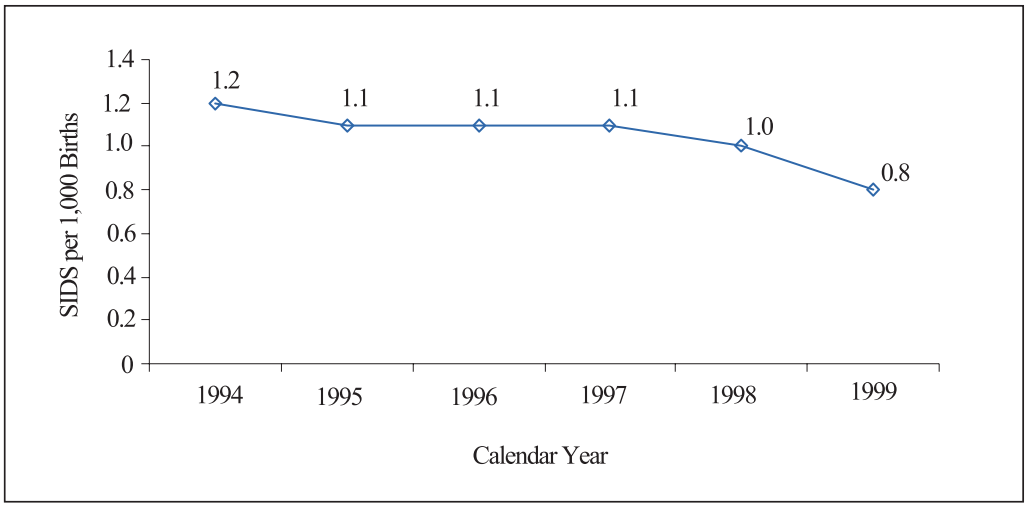
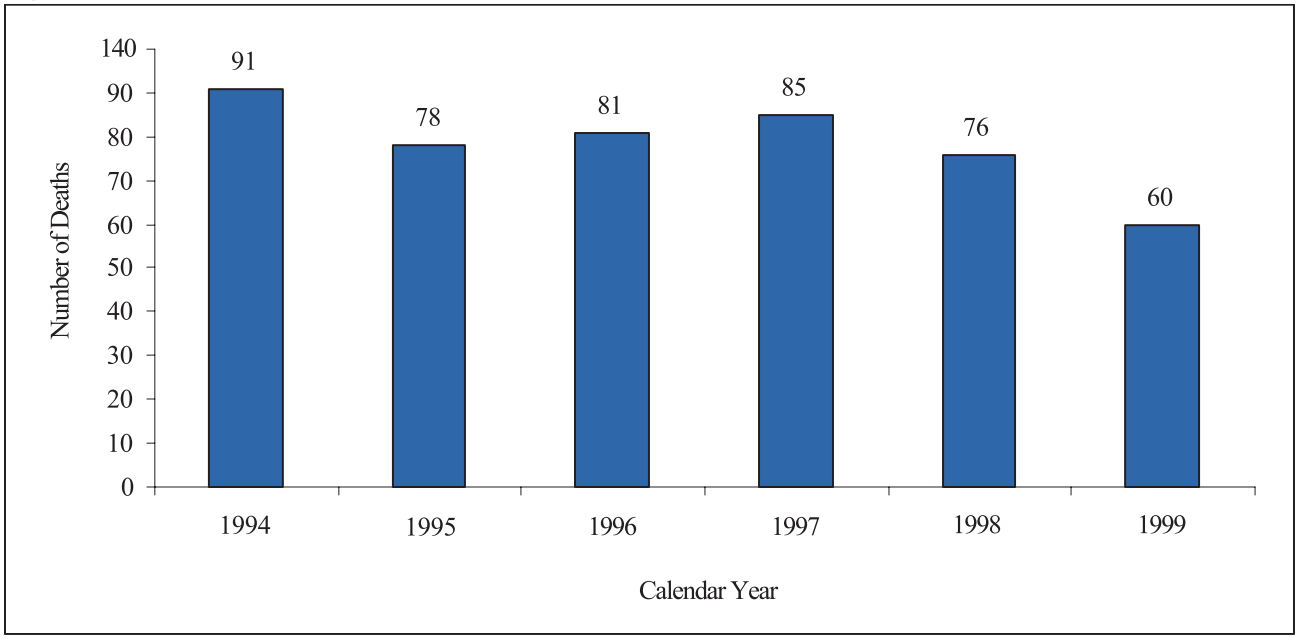


Figure 15. Missouri SIDS Deaths 1994-1999



This rate of decline in SIDS deaths has not occurred among the African-American population, where the practice of placing babies on their stomachs to sleep continues. This indicates prevention messages should be targeted for this population.

Of the **60** SIDS deaths reviewed by county panels, **30** (50%) were on their stomach when found unresponsive. **24** (40%) were co-sleeping with parents, other adult caretakers or older children.

Location when found					
Crib	15	Couch	5	Unknown	8
Playpen	1	Floor	2		
Bed	25	Other	4		
Sleeping alone					
Yes	29	No	24	Unknown	7

The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.

Risk Reduction Recommendations:

For parents:

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds, or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature*: To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Some researchers have found that breastfeeding is a protective factor for SIDS.
- *Prenatal care and well-baby care.*

For community leaders and policy makers:

- *Support Back-to-Sleep campaigns.*

For professionals:

- *Newborn nursery personnel, physicians, nurses, and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.*

For Child Fatality Review Panels:

- *All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.*

References and Resources:

American Academy of Pediatrics, www.aap.org, "Safe Bedding Practices for Infants."

Centers for Disease Control. "Guidelines for death scene investigation of sudden, unexplained infant deaths: recommendation of the interagency panel on sudden infant death syndrome". MMWR 1996:45 (no.RR-10).

"Changing Concepts of Sudden Infant Death Syndrome: Implications for Infant Sleeping Environment and Sleep Position (RE9946), Pediatrics, Volume 105, Number 3, March 2000.

Hoffman, HJ, and Hillman, LS, "Epidemiology of the Sudden Infant Death Syndrome: Maternal, Neonatal and Post Neonatal Risk Factors", Apnea and SIDS, volume 19, number 4, December 1992.

National Back-to-Sleep Campaign ....(800) 505-2742

SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122 .....(800) 421-3511
Counseling and support, research, training and education throughout Missouri.

Sudden Infant Death Syndrome Alliance, www.sidsalliance.org: "Facts on SIDS," 1314 Bedford Avenue, Suite 210, Baltimore, Maryland 21208, 2000

"It is important to note that all of these are recommendations to reduce the risk. However, they cannot *prevent* a SIDS death from occuring."

-SIDS Resources

SECTION FOUR:
Unintentional Injury Deaths

Unintentional injury deaths were responsible for the deaths of **261** Missouri children in 1999, representing 21% of all Missouri incident fatalities.

"If a disease were killing our children in the proportion that injuries are, people would be outraged and demand that this killer be stopped."

-former Surgeon General, C. Everett Koop, M.D.

Unintentional injuries have traditionally been known as accidents and are recorded on death certificates as such. The term accident implies that a serious or fatal event was random or unavoidable, or the result of individual carelessness. In recent decades, the science of injury prevention has moved away from this fatalistic approach to one that focuses on the environment and products used by the public, as well as individual behavior. Injuries are now widely recognized as understandable, predictable and preventable.

Responding to the needs of professionals involved in making policy decisions and planning injury prevention activities, the National Center for Injury Prevention and Control recommends that unintentional replace accident in grouping circumstances of injury. Leading causes of unintentional injury deaths among Missouri children in 1999 were motor vehicle crashes, drowning, unintentional suffocation/strangulation and fire/burn.

"Injury is a problem that can be diminished considerably if adequate attention and support are directed to it. Exciting opportunities to understand and prevent injuries and to reduce their effects are at hand. The alternative is the continued loss of health and life to predictable, preventable and modifiable injuries."

-Dr. William Foege, Former Director of the Centers for Disease Control

The difference between a fatal and nonfatal event is often only a few feet, a few inches, or a few seconds. When compared with large numbers of nonfatal serious injuries, fatalities are relatively rare, the tip of the iceberg. Yet, fatal injuries are sentinel events that indicate significant risks for all children and a deadly threat for some.

Motor Vehicle Fatalities

There were **162** motor vehicle fatalities among Missouri children in 1999, which represents 62% of all unintentional injury deaths.

Motor vehicle crashes remain the leading cause of unintentional injury deaths among Missouri s children, ages 1-17. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles, bicyclists and occupants of any other form of transport.

The Child Fatality Review Program requires review by a county-based panel for any drug or alcohol-related vehicular death and all pedestrian, driveway and bicycle fatalities. However, county panels frequently choose to review other motor vehicle deaths, in order to ensure a thorough investigation of the circumstances, identify risk factors that may have contributed to the death and consider prevention strategies that have the potential to make the community safer for other children.

Of the **162** motor vehicle deaths among Missouri children in 1999, **95** (59%) were reviewed by county panels. The chart below includes all motor vehicle-related child fatalities reported to the Child Fatality Review Program in 1999, by position at the time of injury.

Figure 16. Motor Vehicle Fatalities by Position at Time of Injury

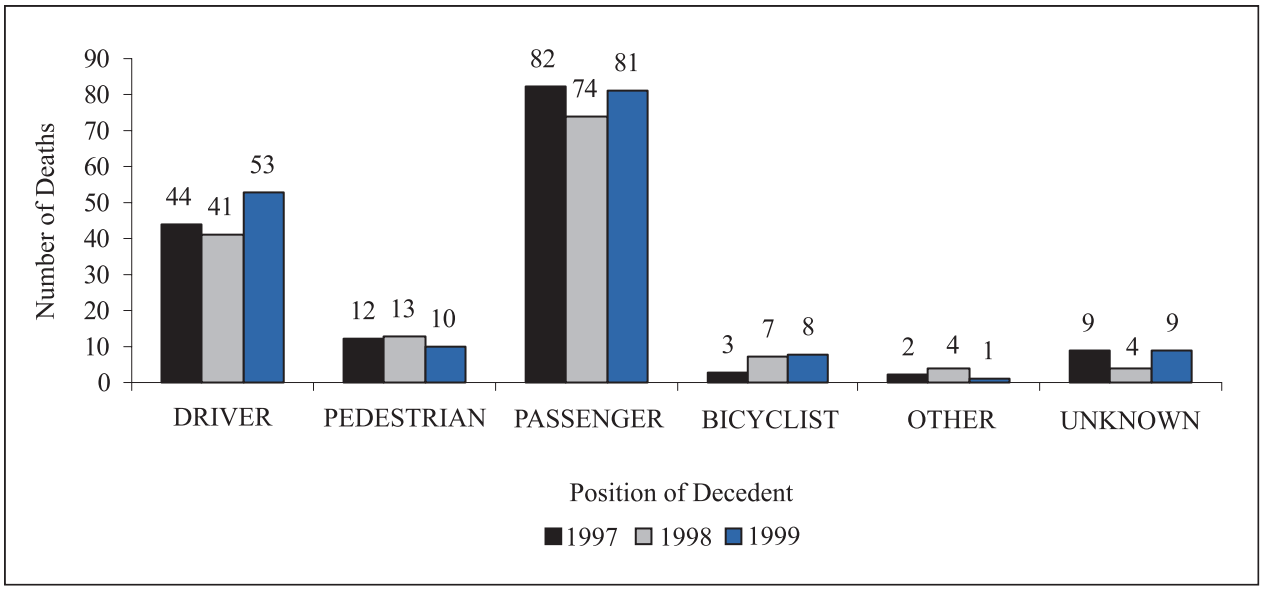


Figure 17. Motor Vehicle Fatalities by Sex and Race

Sex	1997	1998	1999
Female	74	53	53
Male	78	90	109
	152	143	162

Race	1997	1998	1999
White	125	130	149
Black	24	12	11
Other	3	1	2
	152	143	162

Motor Vehicle Fatalites as Reported on CFRP Data Forms

Type of vehicle			
Car	95	Other farm vehicle	2
Truck/RV/Van	28	All-terrain vehicle	1
Motorcycle	2	Semi/Tractor trailer unit	0
Bicycle	5	Other	1
Riding mower	1	Unknown	12
Farm tractor	2	Non-applicable	13

Conditions of road	
Normal	118
Loose gravel	6
Wet	9
Ice or snow	3
Other	4
Unknown	22

Restraint used		Primary cause of accident	
Present, not used	53	Speeding	42
None in vehicle	3	Carelessness	23
Used correctly	25	Mechanical failure	2
Used incorrectly	1	Weather	4
Unknown	59	Driver error	44
Not applicable	21	Other	17
		Unknown	30

Helmet used		Alcohol and/or other drug use	
Helmet worn	0	Decedent impaired	13
Helmet not worn	10	Driver of decedent's vehicle impaired	12
Not applicable	141	Driver of other vehicle impaired	3
Unknown	11	Not applicable	56
		Unknown	78

Driver and Passenger Fatalities

Representative Cases:

- ***Children age 4 years and under should ride appropriately restrained in a child safety seat.***

  A two-year-old girl was riding unrestrained in a car driven by her mother. The road was covered with snow and ice. The driver lost control and struck a guard rail, then struck another vehicle. The child was thrown from the back seat into the windshield and ejected through a side window. She died of massive injuries.

- ***The most significant risk factors among teen drivers are inexperience, low rates of seatbelt use, and alcohol.***

  A 16-year-old boy was driving his car at a high rate of speed around midnight when he lost control, striking a culvert pipe. The car overturned, ejecting the driver and his passenger. The car landed on top of the driver. The driver had been drinking.

134 (83 %) of the **162** motor vehicle deaths in Missouri in 1999, involved drivers and passengers.

The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor-vehicle related fatalities among children: (1) drunk drivers and (2) unrestrained children. Unrestrained children refers to infants and toddlers who are not in properly installed car seats and older children whose seatbelts are not fastened.

56 of the child passenger fatalities in Missouri in 1999, were known to be riding unrestrained. **Five** of those were children age 4 and under. Missouri law requires requires restraint for children under age 4 and allows for primary enforcement, meaning that a police officer can stop and cite the driver solely for violation of the restraint law. The National Safe Kids Campaign reports that 40% of children age 4 and under ride unrestrained, placing them at twice the risk of death and injury as those riding restrained.

The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to safety belts. It is estimated that approximately 80% of children who are placed in child safety seats are improperly restrained.

Of the **95** motor vehicle fatalities reviewed by county panels, **12** of child passenger fatalities in 1999 involved a child riding with a driver who was impaired by alcohol or drugs. Safe Kids reports that nationally, more than one-fifth of all traffic deaths among children ages 14 and under involve alcohol. In nearly two-thirds of the passenger deaths involving a drunken driver, the child was in the car driven by the drunken driver.

According to the National Center for Injury Prevention and Control, the most significant risk factors among teen-agers are inexperience, low rates of seat belt use, and alcohol. Teenagers are more likely than older drivers to underestimate the dangers in hazardous situations, and they have less experience coping with such situations.

98 (60%) of Missouri motor vehicle fatalities among children were *teenagers*, 15-17 years. **33** of those were known to be *unrestrained* at the time of the crash. According to the National Highway Traffic Safety Administration, use of seat belts is estimated to reduce the risk of a fatal motor vehicle injury by 45% and of moderate to critical injuries by 50%.

18 (18%) of crashes involving teenagers were drug or alcohol-related. In **5** of those crashes, the driver was impaired.

The 1999 Missouri Youth Risk Behavior Survey found that during the 30 days preceding the survey, 16% of students had driven when they had been drinking and 35% had riden one or more times in a vehicle driven by someone who had been drinking alcohol. 24% of students reported that they never or rarely wore a seat belt, when riding in a car driven by someone else.

Graduated licensing, which imposes restrictions on new drivers that are systematically lifted as the driver gains experience, has proven effective in saving lives in other states. It is anticipated that Missouri s new graduated licensing system will reduce deaths and injuries from motor vehicle crashes involving teens, when it becomes effective in January 2001.

Pedestrian Fatalities

Representative Cases:

- ***Young children require constant supervision.***

A 15-month-old boy was run over by an adult relative who was backing out of the driveway. The child ran across the driveway behind the vehicle, apparently attempting to reach his parents, who believed he was playing in the back yard with older siblings. The vehicle knocked the toddler down and he was run over by the left front tire.

- ***Young children should never be allowed to cross streets alone.***

A seven-year-old girl was being cared for by a neighbor, while her mother was away, receiving medical treatment. The child was excited to see her mother when she returned home. She was allowed to run across a field and a road unaccompanied to greet her. She was struck by a car.

Of the **162** motor vehicle fatalities among children in Missouri, **10** were pedestrians. **Four** of those were age 4 and under; **1** was between the ages of 5 and 9.

The following is a summary of information provided by the National Safe Kids Campaign:

Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children s pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.

Toddlers (ages 1 and 2 years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.

Children age 5 through 9 are at the greatest risk from pedestrian death and injury. Children ages 14 and under are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.

Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children s traffic behavior. Environmental modifications are effective at reducing pedestrian-motor vehicle-related incidents.

Bicycle-related Fatalities

Representative Cases:

- ***Children should always wear a helmet when riding bicycles.***

A 7-year-old girl was riding her bicycle several blocks from home, crossing streets that were wet with rain. She disregarded a red light and rode into the path of the on-coming vehicle. She was not wearing a helmet. This child suffered a massive head injury. Child protective services reported a long history of inadequate supervision by the mother.

- ***Children should wear reflective clothing when riding bicycles after dark and avoid high traffic areas.***

A 12-year-old boy was riding his bicycle on a wet highway after dark. He was not wearing a helmet. He was struck by a car, whose driver could not see him on the dark highway until it was too late. The bicyclist suffered a massive head injury.

Motor vehicle fatalities among Missouri children also include **8** bicyclists who died in 1999, when they were either struck by a motor vehicle or fell. The majority suffered fatal head injuries. **None** were reported to be wearing a helmet.

The single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. Unfortunately, national estimates on helmet usage suggest that only 25% of children ages 5-14 wear a helmet when riding. Helmet usage is lowest among children ages 11 to 14. (Safe Kids) The primary strategies to increase bike helmet use include education, legislation, and helmet-distribution programs. (National Center for Injury Prevention and Control)

Prevention Recommendations:

For parents:

- *Children 12 years old and younger should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.*
- *Never allow children under age 12 to cross streets alone.*
- *Always model and teach proper pedestrian behavior.*

For community leaders and policy makers:

- *Children age 4 through 15 should be included in the child restraint law in Missouri, thereby making restraint use in the age group subject to primary enforcement.*
- *Raise the penalty for violation of child restraint laws to at least $25 and one driver s license point.*
- *Missouri should remove the provision of the vehicle equipment regulations that states that if there are not enough safety belts for all passengers, they are not in violation for failure to use.*

For professionals:

- *Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles and provide child safety seats to those who do not have them, such as safety seat check-up events.*
- *Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.*

For Child Fatality Review Panels:

- *Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.*

References and Resources:

- *National Safe Kids Campaign.. ...www.safekids.org*
- *National Center for Injury Prevention and Control .....www.cdc.gov/ncipc*
- *Harborview Injury Prevention and Research Center ..... http://depts.washington.edu*
- *National Highway Transportation Safety Administration .....www.nhtsa.dot.gov*
- *Missouri Division of Highway Safety.. ....www.dps.state.mo.us/dps/mshs/hs*
- *Think First .....www.thinkfirst.org*
- *Kids 'N Cars .....www .kidsncars.org*
- *Missouri Youth Risk Behavior Survey 1999..Missouri Department of Elementary and Secondary Education .....www.dese.state.mo.us*

Drownings

26 Missouri children drowned in 1999,
representing 10% of unintentional injury deaths.

Representative Cases:

- ***Never leave young children alone in bathtubs, even for a minute.***

A 20-month-old girl was in the bathtub with her twin. She was seated in a ring device to assist in sitting upright. The mother removed the twin to another room to dry her. When she returned, the victim had slipped out of the ring and drowned.

- ***Residential pools should have four-sided fencing with self-latching gates.***

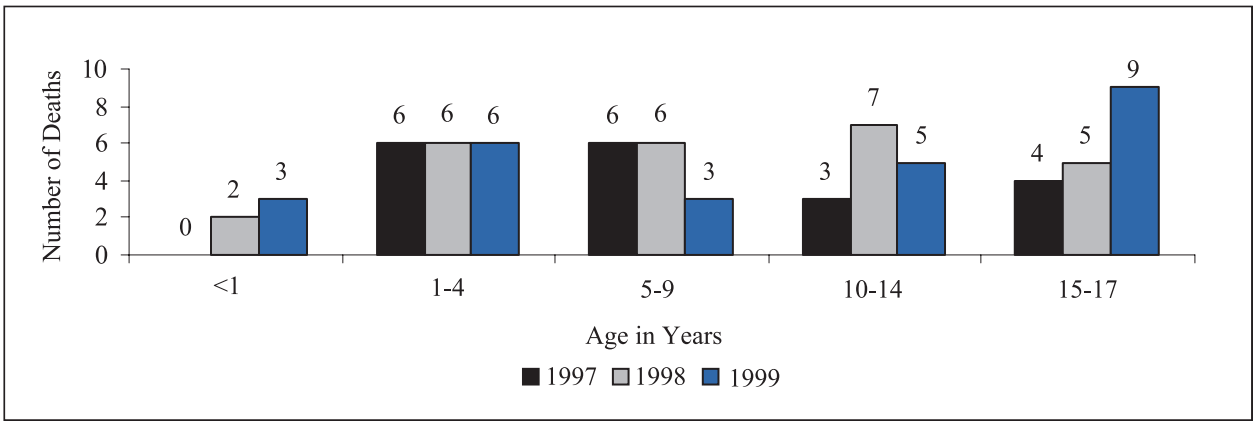
A two-year-old girl was with her family, who were preparing for a trip, when she was missed. After a quick search, she was found in the swimming pool.

- ***Children should wear personal flotation devices in and around open water.***

A 16-year-old boy was swimming with two friends in a lake. They were swimming laps from the beach to a buoy. None of the three teens was wearing a personal flotation device. The two friends noticed that the victim was falling behind and, when they looked back, they noticed he was bobbing in the water. When they arrived at the beach and looked back, he had disappeared.

In Missouri, as well as in the United States, drowning is the *second leading cause of unintentional injury-related death* among children 17 and under.

Figure 18. Drowning Deaths by Age



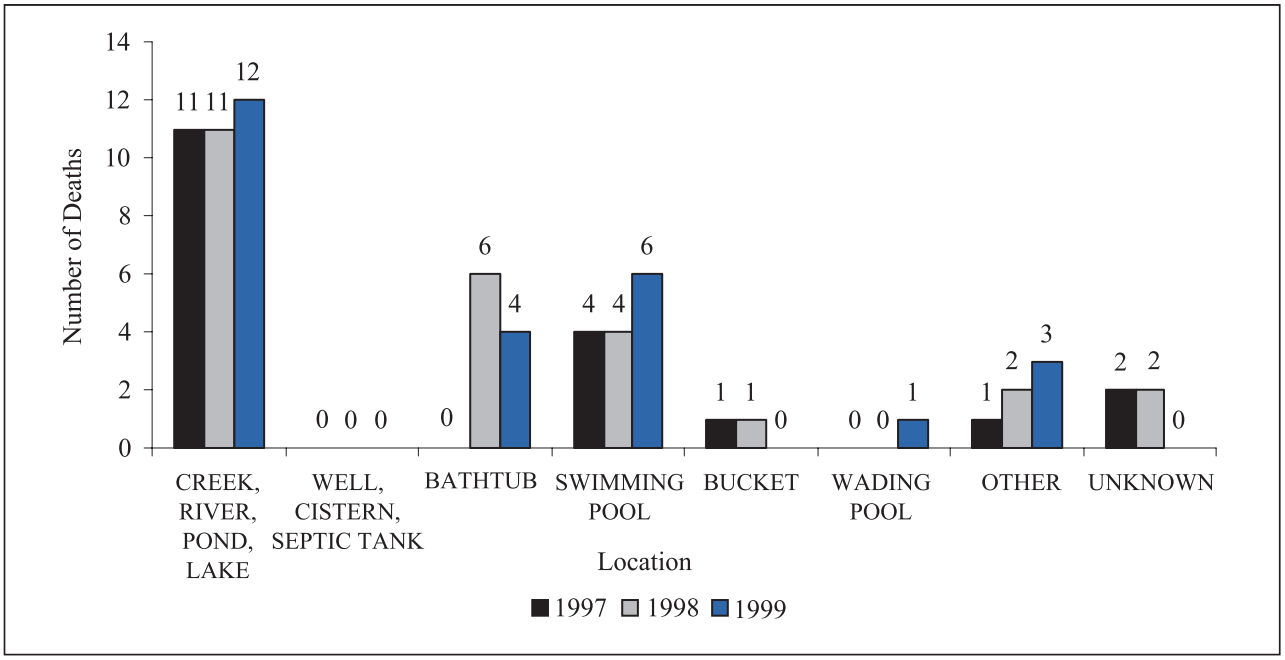
Of the **26** children who drowned in Missouri in 1999, **9** (35%) were age 4 and under.

Figure 19. Drowning Deaths by Sex and Race

Sex	1997	1998	1999
Female	4	12	8
Male	15	14	18
	19	26	26

Race	1997	1998	1999
White	11	19	17
Black	7	6	8
Other	1	1	1
	19	26	26

Figure 20. Location of Drownings



In the United States, young children (under age 4) have the highest drowning death rate. Drownings among infants under the age of one, typically occur in residential bathtubs. Most drownings among children 1 through 4 years old occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended or during a brief lapse in supervision.

Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the **26** Missouri children who drowned in 1999, **6** (23%) occurred in swimming pools, **12** (46%) occurred in open water sites.

23 (88%) of the 26 children who drowned in 1999 were known to not have been wearing a flotation device.

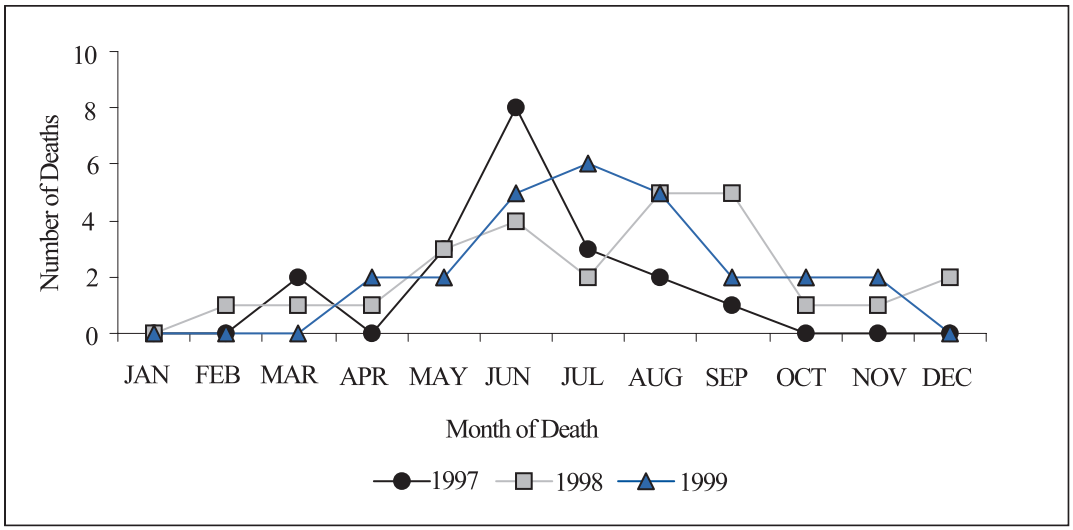
2 of the older children who drowned in bathtubs (ages 11 and 15) were known to have seizure disorders and had been left unattended.

Drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise while thrashing around in the water and resurface several times before actually drowning is pervasive, but entirely false. (National Center for Injury Prevention and Control)

It has been estimated that for each childhood drowning death, about 4 children are hospitalized and 14 are seen in the emergency department and released. Near-drownings have high fatality rates. (Safe Kids)

The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.

Figure 21. Drowning Deaths by Month of Death



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	0	0	2	0	3	8	3	2	1	0	0	0
1998	0	1	1	1	3	4	2	5	5	1	1	2
1999	0	0	0	2	2	5	6	5	2	2	2	0

***Prevention Recommendations**:*

For parents:

- *Never leave a child unsupervised in or around water in the home, swimming pool or spa, even for a moment.*
- *For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.*
- *Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.*
- *Learn CPR.*

For community leaders and policy makers:

- *Enact and enforce pool fencing ordinances.*
- *Enforce existing regulations regarding the use of personal flotation devices when boating.*

For professionals:

- *Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.*
- *Facilitate CPR training for parents of small children.*

For Child Fatality Review Panels:

- *Promote public education about drowning hazards to children and strategies to prevent drowning.*

References and Resources:

National Safe Kids Campaign .....www.safekids.org
National Center for Injury Prevention .....www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center .....
http://depts.washington.edu/hiprc

Unintentional Suffocation/Strangulation

Unintentional Suffocation/Strangulation was the
cause of **25** deaths of Missouri
children in 1999, representing 10% of unintentional injury deaths.

Representative Cases:

- ***Avoid soft bedding for infants.***

A six-week-old male infant was put to bed by his mother on his stomach in a crib. He was placed facedown on top of two comforter with his head resting on a pillow and his face to the side. He was later found unresponsive with his face pressed against the bumper pads. He died of unintentional suffocation.

- ***Infants should be placed in a safe crib with a firm, tight-fitting mattress.***

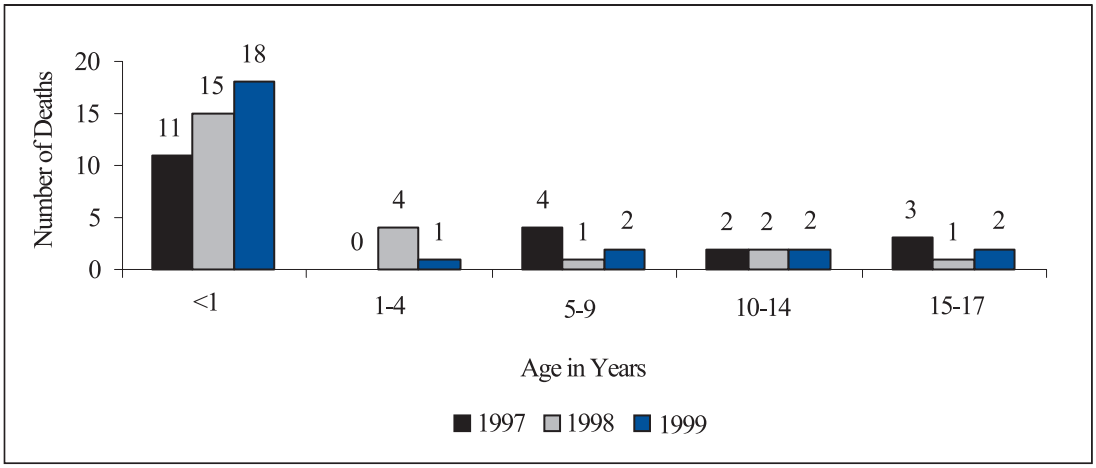
An eight-week-old male infant was found unresponsive in his mother s bed. The mother was napping with the baby. The father found mother asleep on top of the child. The child died of accidental suffocation as the result of an overlay.

- ***Playgrounds should be maintained and inspected for safety.***

A 12-year-old male was playing at a school playground where a rope had been left hanging from a crossbar. He put the rope around his neck, pretending to hang himself, but fell from the table he was standing on. He unintentionally hung himself.

Of the **25** Missouri children who died in 1999 as a result of unintentional suffocation/strangulation, **18** (72%) were infants under the age of one year.

Figure 25. Unintentional Strangulation/Suffocation Deaths by Age



Strangulation deaths may also be intentional, either inflicted by others (homicide) or self-inflicted (suicide). These are discussed in the appropriate sections under Intentional Injury Deaths.

The following discussions of unintentional suffocation/strangulation are a summary of information from the National Safe Kids Campaign:

Obstruction of the airway (suffocation, strangulation and choking) is a leading cause of injury death in infants under the age of one year in Missouri and in the United States. These injuries occur when children are unable to breathe normally because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Children, especially those under age 3, are particularly vulnerable to airway obstruction death and injury due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, an infant s inability to lift his or her head or extricate themselves from tight places puts them at greater risk.

Figure 26. Cause of Unintentional Strangulation/Suffocation Deaths

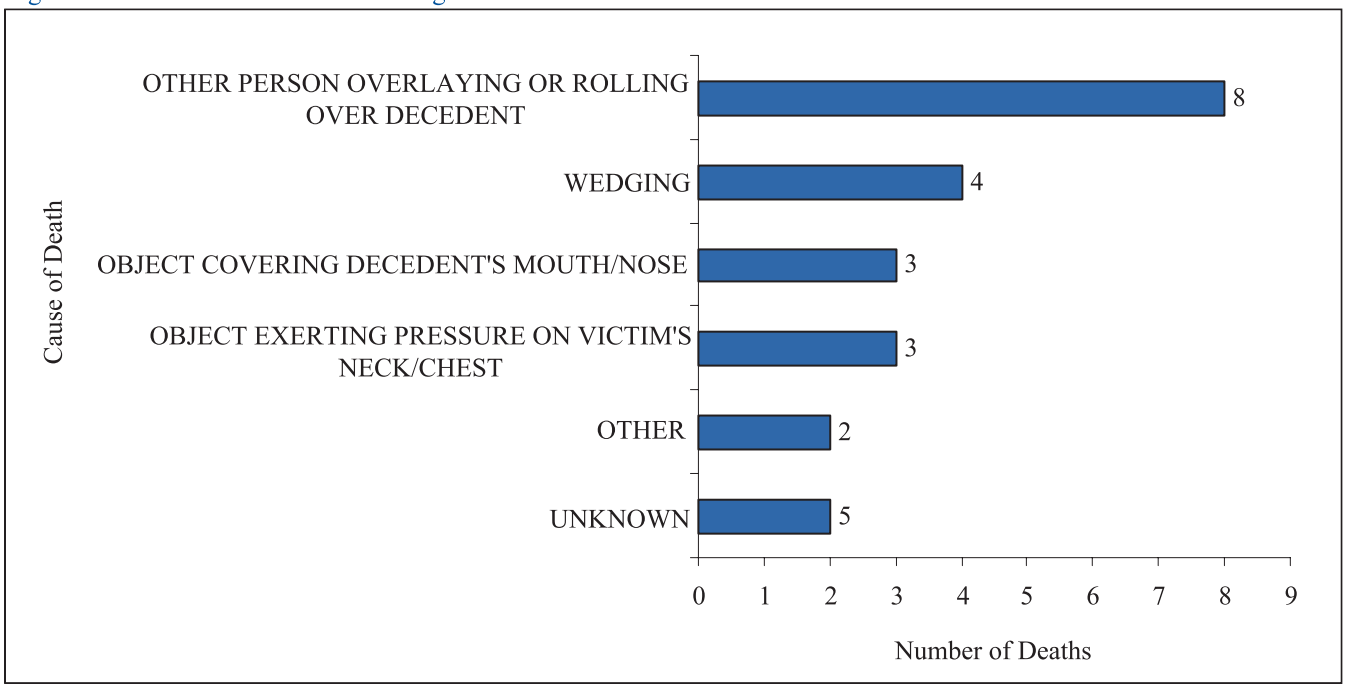


Figure 27. Unintentional Strangulation/Suffocation Deaths by Sex and Race

Sex	1997	1998	1999
Female	3	11	9
Male	17	12	16
	20	23	25

Race	1997	1998	1999
White	18	16	19
Black	2	7	6
	20	23	25

Suffocation

Of the **25** infants who died of unintentional suffocation/strangulation, **8** were overlays, **4** were wedging, **3** had objects covering their mouth and nose, **2** had objects exerting pressure on their neck or chest, **2** other and **5** were listed as unknown.

Most infant deaths due to suffocation are directly related to unsafe sleep arrangements. Infants can suffocate when their faces become wedged against or buried in a mattress, pillow, comforter, bumper pad or other soft bedding (environments conducive to re-breathing of their own air) or overlays, when someone in the same bed rolls over on them (co-sleeping with adults or older children).

Older, used cribs pose a variety of hazards to infants and toddlers and each year in the United States cribs are responsible for 45 suffocation and strangulation deaths of infants and toddlers.

Toddlers and young children also suffocate when they become trapped in household appliances, such as refrigerators or dryers and toy chests.

Choking

Of the **2** children who choked, one infant choked on the lid of a perfume bottle and a 6-year-old choked on a piece of hard candy while riding a bicycle.

In the United States most childhood choking injuries and deaths are associated with food items, particularly small, round foods, such as hot dogs and peanuts. Other small round objects like coins, small balls and balloons pose choking hazards for young children. Balloons are the most common cause of toy-related choking death and are as common among children ages 3 and older as among younger children.

Strangulation

Children strangle in openings that permit the passage of their bodies, yet are too small for, and entrap, their heads. These include spaces in bunk beds, cribs, playground equipment, baby strollers, and high chairs.

Unintentional hangings occur when items such as clothing drawstrings, ribbons or other decorations, window blind and drapery cords and pacifier strings become wrapped around the neck of the child.

***Prevention Recommendations**:*

For parents:

- *Follow Safe Bedding Practices for Infants recommended by the American Academy of Pediatrics:*
  -Place baby on his/her back on a firm, tight-fitting mattress in a crib that meets current safety standards.

  -Remove pillows, quilts, comforters, sheepskins, stuffed toys, and other soft products from the crib.
  -Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
  -If using a blanket, put baby at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only as far as the baby s chest./

-Make sure your baby s head remains uncovered during sleep.
-Do not place baby on a waterbed, sofa, soft mattress, pillow, or other soft surface to sleep.

- *Remove drawstrings from children s clothing.*
- *Tie up or remove all cords for window coverings.*

For community leaders and policy makers:

- *Support legislation that requires improved product design or removal of hazardous products from the market.*

For professionals:

- *Information about unintentional suffocation/strangulation hazards to young children should be widely disseminated.*
- *Teach parents CPR and the Heimlich Maneuver, for infants and young children.*

For Child Fatality Review Panels:

- Report any child death that appears to involve a product hazard to the Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

References and Resources:

Consumer Product Safety Commission .....www.cpsc.gov
National Safe Kids Campaign .....www.safekids.org
American Academy of Pediatrics .....www.aap.org
Missouri Children s Trust Fund, "Safe Crib Project".....www.ctf4kids.org

Fire/Burn Fatalities

Fire/Burn injuries were the cause of **19**
Missouri child deaths in 1999, representing 7%
of unintentional injury deaths.

Representative Cases:

- ***Lighters, matches, and other sources of fire should be kept locked away from children.***

A 4-year-old boy was living in a mobile home with his parents and two older siblings. He had a history of playing with lighters and matches. A fire broke out in the early morning hours in a back bedroom, where the child was playing with a cigarette lighter. Firefighters were unable to reach the child. He was eventually found hiding behind a piece of furniture. There was a smoke alarm present, but it was not in working order.

- ***Every residence, including rental property, should have working smoke detectors.***

A 15-year-old boy was one of two victims found in a house after a fire. The house was crowded with visitors, with a total of 11 people present at the time of the fire. The victim was found lying facedown in a corner, under a charred table. He died of smoke inhalation. Fire investigators believe a candle started the fire in an adjacent room. There was no smoke alarm present.

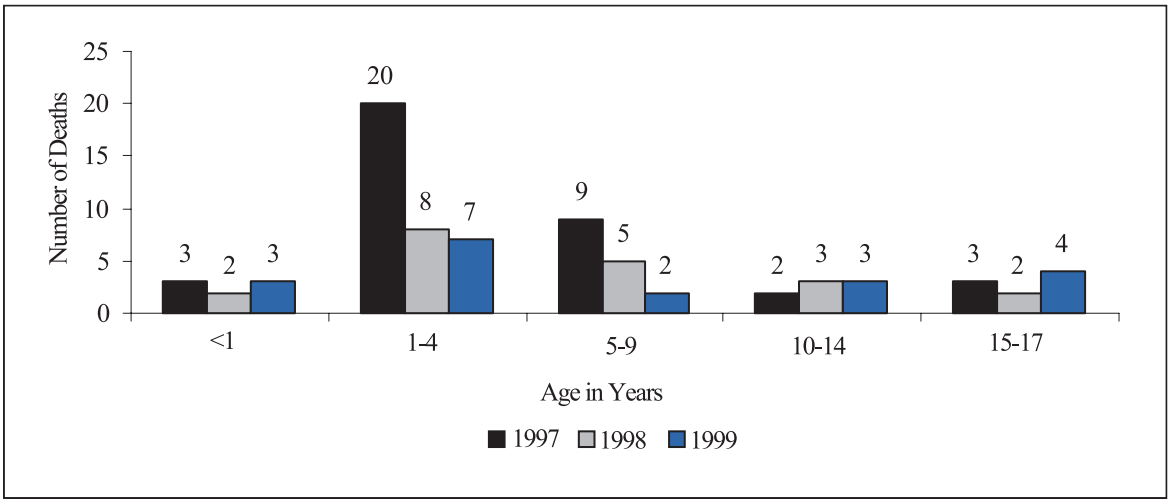
- ***Gasoline and other flammable liquids should always be stored in approved containers, away from living areas.***

A 16-year-old boy and his sister entered a utility room where a gas can had been left sitting on the floor. The victim knocked the gas can over when he put his foot on it. Gas flowed under a hot water heater and ignited, catching both the victim and his sister on fire. The victim suffered multiple third-degree burns.

In Missouri, fire and burn injuries are the fourth leading cause of injury death among children. Missouri reflects the pattern of the United States as a whole, where fire and burn fatalities are the fourth leading cause of death as well. Three-fourths of all fire-related deaths are from smoke inhalation, caused by the toxic gases produced as the fire develops and spreads.

In 1999, **19** Missouri children died as a result of fire/burn injury. **10** (53%) of these children were under the age of 5. Of the **10** under the age of 5, **3** were less that one year of age.

Figure 22. Fire/Burn Deaths by Age



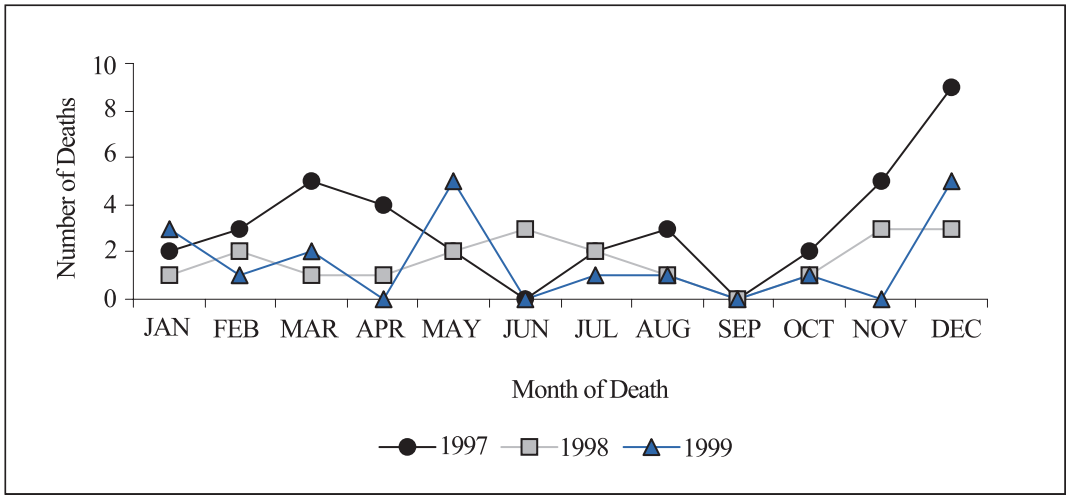
Children, especially those age 5 and under, are at the greatest risk from home fire-related death and injury and are more than *twice* as likely to die in a fire than the rest of the population. Young children have a *limited ability* to react promptly and properly to a fire; they are unable to act, or act irrationally. They may attempt to hide or run from adults attempting to rescue them. More than half the children under the age of 5 who die in home fires, are asleep at the time of the fire. (Safe Kids)

Figure 23. Fire/Burn Deaths by Sex and Race

Sex	1997	1998	1999
Female	17	9	6
Male	20	11	13
	37	20	19

Race	1997	1998	1999
White	20	12	10
Black	13	8	9
Other	4	0	0
	37	20	19

Figure 24. Fire/Burn Fatalities by Month of Death



Cooking is the leading cause of home fires in the U.S. and home heating is the second leading cause. Residential fires and related fatalities occur more often during cold-weather months, December through February, when the use of heating systems is at a peak.

Risk factors

• A working *smoke alarm* is not present in two-thirds of the residential fires, in which a child is injured or killed. (Safe Kids)

• Children living in *rural areas* have a dramatically higher risk of dying in a residential fire. (United States Fire Administration)

• Nationally, over 30% of the fires that kill young children are started by *children playing with matches or lighters*. These fires tend to begin in the bedroom or living room, where children are often left alone to play. (National Center for Injury Prevention and Control)

• Children from *low-income families* are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources, and economic constraints on providing adequate adult supervision. (Safe Kids)

Fire/Burn Fatalities as Reported on CFRP Data Forms

Smoke alarm present		Fire started by	
Yes	8	Decedent	3
No	3	Other	2
Unknown	7	No one	8
Not applicable	1	Unknown	6

Activity of person starting fire		Multiple fire injuries or deaths	
Playing	5	Yes	14
Other	2	No	4
Unknown	1	Unknown	1
Not applicable	11		

For structure fire, where was decedent found		Did decedent know of a fire escape plan	
Hiding	2	Yes	0
In bed	5	No	1
Other	8	Unknown	15
Unknown	4	Not applicable	3

Source of fire		Smoke alarm in working order	
Matches	1	Yes	2
Lighter	3	No	1
Combustibles	2	Unknown	12
Other	7	Not applicable	4
Unknown	6		

Smoke detectors

Smoke detectors were reported to be present in 8 of the fatal fires reviewed by county CFRP panels in 1999, but only two were known to be in working order. The effectiveness of smoke alarms is well established. A working smoke alarm dramatically increases a person's chance of surviving a fire. It is estimated that over 40% of residential fires and three-fifths of residential fatalities occur in homes with no smoke alarms. Approximately 90% of U.S. homes have at least one smoke alarm. However, these alarms are not always properly maintained. There has been a disturbing increase over the last ten years in the number of fires that occur in homes with non-functioning alarms. (Safe Kids, Harborview Injury Prevention and Research Center)

***Prevention Recommendations**:*

For parents:

- *Keep matches, gasoline, lighters and all other flammable materials locked away and out of children's reach.*
- *Install smoke alarms on every level and in every sleeping area. Test them once a month, replace batteries at least once a year.*
- *Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire to escape to safety.*

For community leaders and policy makers:

- *Enact laws that require smoke detectors in new and existing housing and make landlords responsible for ensuring that rental properties have working smoke detectors.*
- *Enforce building codes and conduct inspections.*

For professionals:

- *Smoke detector giveaway programs have proven useful when high risk areas are targeted. Implement such a program in your community.*
- *Implement a multi-faceted community campaign to prevent burn injuries. Target a well-defined population with a very specific message.*

For Child Fatality Review Panels:

- *When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursuing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision when investigating deaths of young children in house fires.*

***References and Resources**:*

United States Fire Administration .....www.usfa.fema.gov
National Safe Kids Campaign .....www.safekids.org
Harborview Injury Prevention and Research Center .. ..
depts.washington.edu/hiprc
Missouri Division of Fire Safety,
Office of the State Fire Marshall .....www.firesafe@dfs.state.mo.us

Unintentional Firearm Fatalities

Unintentional firearm injuries were the cause of **13** deaths of Missouri children in 1999, representing 5% of unintentional injuries.

Representative Cases:

- ***Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.***

A 13-year-old boy was looking on as his 15-year-old brother was cleaning a rifle. The gun was believed to be unloaded. The 13-year-old was fatally wounded when the gun discharged.

- ***Children always know where guns are kept! Lock guns away and store ammunition separately.***

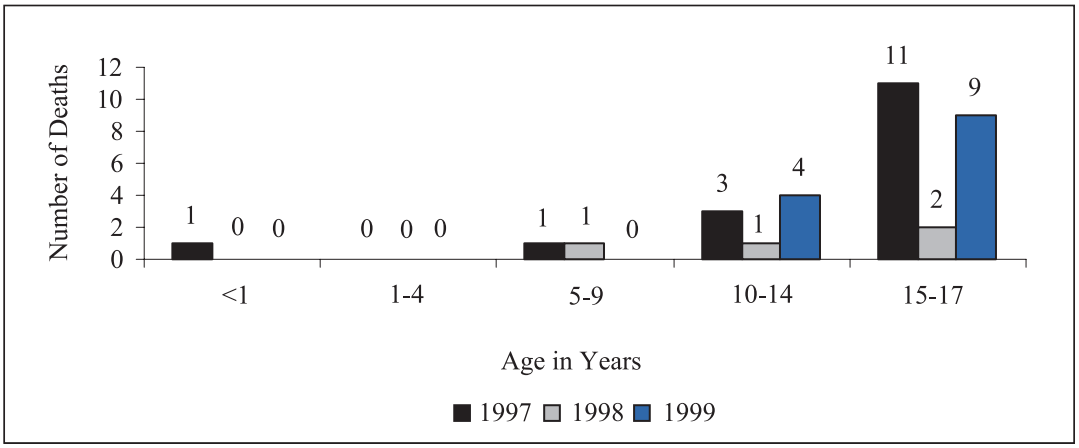
A 14-year-old male and his 13-year-old brother were looking at shotguns stored in a cabinet in the home of their uncle. The 13-year-old pointed the shotgun at his brother. He believed the gun to be unloaded and pulled the trigger. The 14-year-old died of a gunshot wound to the chest.

- ***Risk-taking behavior and alcohol among teen-agers places them at increased risk of serious injury and death.***

A 16-year-old boy was engaging in a game of Russian Roulette, when he pulled the trigger and the handgun fired. He died of a gunshot wound to the head. He was legally drunk at the time of death.

In the United States, nearly 70% of unintentional shootings involve children age 10-14. Of the **13** Missouri children who died in 1999 as a result of unintentional shooting, **4** (31%) were age 10-14.

Figure 28. Unintentional Firearm Fatalities by Age



Most victims of unintentional firearm deaths are white males.

Figure 29. Unintentional Firearm Fatalities by Sex and Race

Sex	1997	1998	1999	Race	1997	1998	1999
Female	0	0	1	White	10	3	10
Male	16	4	12	Black	6	1	3
	16	4	13		16	4	13

Nationally, more than 70% of unintentional firearm shootings involve handguns. When long guns (rifles and shotguns) are involved in unintentional shootings, they most often occur in non-urban areas. Of the **13** unintentional firearm deaths among Missouri children in 1999, **7** (54%) involved a handgun.

Figure 30. Unintentional Firearm Fatalities by Firearm Type

Firearm Type	Number of Deaths
Handgun	7
Rifle	1
Shotgun	5
	13

Other key factors:

- Most unintentional childhood shooting deaths involve guns kept in the home that have been left loaded and accessible to children, and occur when children play with loaded guns.
- Unintentional shootings among children most often occur when children are unsupervised and out of school. These shootings tend to occur in the late afternoon, during the weekend, and during summer months and the holiday season.
- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.
- Generally, before age 8, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Children as young as age 3, are strong enough to pull the trigger of many of the handguns available in the U.S.

***Prevention Recommendations**:*

For parents:

- *Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children s reach, use gun locks, load indicators and other safety devices on all firearms.*
- *All parents should teach children never to touch a gun and tell an adult if they find a gun.*

For community leaders and policy makers:

- *Enforce laws and ordinances that restrict access to and decrease availability of guns.*
- *Enact and enforce laws requiring new handguns be designed to minimize the likelihood of discharge by children.*
- *Enact laws outlining owner liability for harm to others, caused by firearms.*

For professionals:

- *Implement gun safety education. It is important to include public education about the hazards of firearms, as one component of an overall effort to reduce the incidence of firearm injuries and deaths.*

For Child Fatality Review Panels:

- *In all cases of firearm fatalities involving children, ensure that every effort is made to determine the source of the gun and consider the responsibility of the gun owner in the incident.*

***References and Resources**:*

National Safe Kids Campaign .....www.safekids.org
Harborview Injury Prevention and
Research Center http://depts. washington.edu/hiprc

SECTION FIVE:
Intentional Injury Deaths

Intentional injuries were responsible for the deaths of **91** Missouri children in 1999, representing 7% of all Missouri incident fatalities.

Homicide is defined as death at the hands of another person. *Suicide* is defined as death by self-inflicted means. Homicides and suicides are included in this report as intentional injury. Because this report is prevention-focused, this data is reported without regard to charges, arrests or prosecutions. This information reflects the base of knowledge compiled by local Child Fatality Review panels.

Injury deaths are reported to the Child Fatality Review Program on the Data Form 2 according to whether they were inflicted, that is, the result of an assaultive or aggressive action, and whether the injury was intentional, unintentional/accidental or unknown. The Data Form 2 also requires information about the relationship of the person inflicting the injury to the victim, and the age and race of the primary person inflicting the injury.

Homicides

Homicide was the cause of **56** child deaths in Missouri in 1999.

Homicides

For the purposes of the analysis of child deaths and their prevention, homicides can be reported and discussed in terms of the relationship of the perpetrator to the victim, which places panel-reviewed deaths into three basic categories:

(1) *Fatal child abuse and neglect refers to the death of a child at the hands of their parent or caretaker.* This includes both physical injury and negligent treatment. There were **25** cases of fatal child abuse and neglect reported to the Child Fatality Review Program in 1999.

(2) *Homicides involving a child victim and a peer or an adult perpetrator, not in charge of the child.* This includes teen violence, such as a gang or drug-related shooting or stabbing, and child abduction and murder. There were **28** such fatalities among Missouri children in 1999. This total includes: 14 intentional firearm deaths, 6 arson fatalities, 4 suffocation/stragulations, 2 stabbings and 2 abductions, which culminated in murder.

(3) *Deaths involving criminal or negligent behavior, in which the child was not an intended victim.* Examples include motor vehicle crashes involving drugs, alcohol, other criminal behavior and arson. There were **3** motor vehicle fatalities in this category.

Other Homicides: Also included in the third category are fetal deaths resulting from assaults on pregnant women. Three such deaths were reported to the Child Fatality Review Program in 1999. These cases were reviewed by county-based panels at their discretion, but they are not include in data totals in this report. Missouri Child Fatality Review Program data is limited to live births. These deaths are included in the graph below, Homicides by Cause.

The following is an overview of all homicides reported to the Child Fatality Review Program and reviewed by a county-based panel. Fatal child abuse and neglect (including Shaken Baby Syndome) and Intentional Firearm Injuries are detailed in the next section.

Figure 31. Homicides by Age

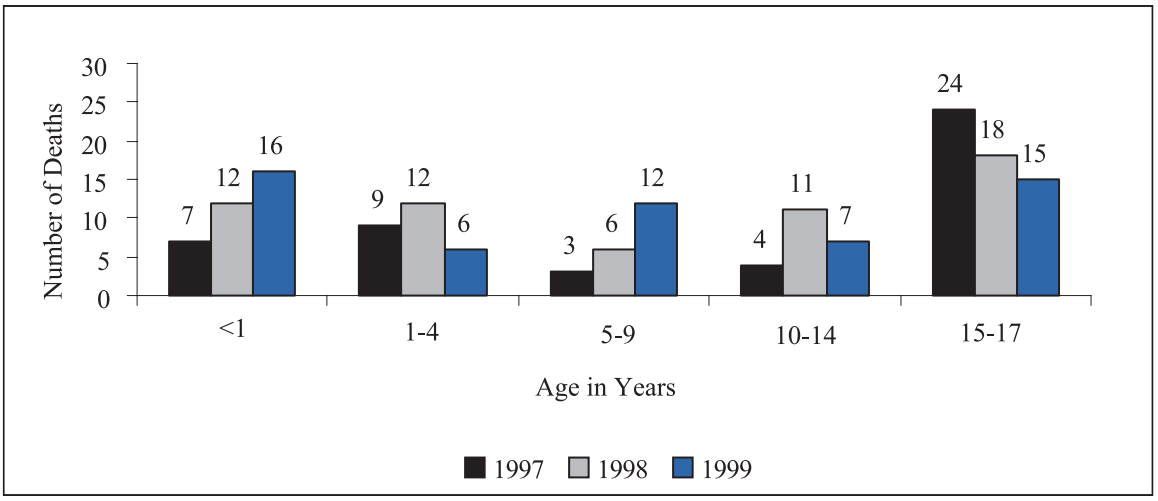
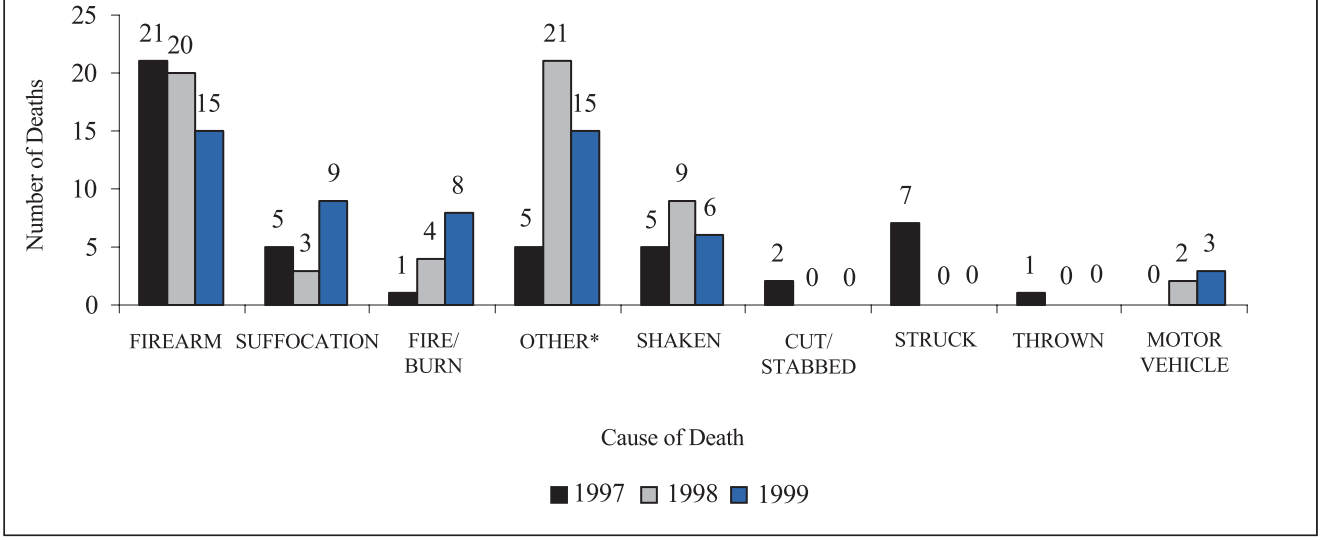


Figure 32. Homicides by Sex and Race

Sex	1997	1998	1999
Female	12	19	24
Male	35	40	32
	47	59	56

Race	1997	1998	1999
White	21	22	18
Black	26	37	37
Other	0	0	1
	47	59	56

Figure 33. Homicides by Cause



* Includes 3 lack of care and 12 other inflicted injury.

Homicides: Intentional Firearm Fatalities

Of the **56** child homicides in Missouri in 1999, intentional firearm injuries resulted in the deaths of **15** children, representing 27% of all homicide deaths.

Representative Cases:

- ***Gang activity and teens.***

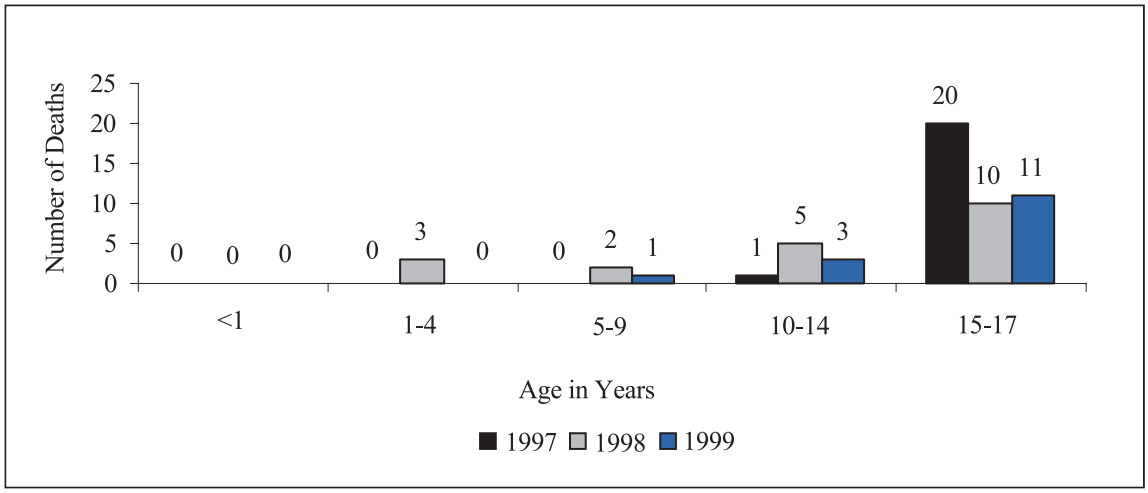
A 14-year-old boy was shot in the chest by 16 and 18-year-old acquaintances, who used a stolen handgun in this drive-by shooting. The shooting was related to drug and gang activity.

- ***Access to firearms by children should be restricted and existing laws enforced.***

A 17-year-old was shot in the head when he argued with another teen-ager who left the scene and returned a short time later with a handgun. The 17-year-old died of a gunshot would to the head.

Intentional firearm injuries are the leading cause of intentional injury death among Missouri teens age 15 through 17 years. **11** (73%) of intentional firearm deaths involved children 15-17.

Figure 34. Homicide Firearm Deaths by Age



Homicide firearm fatalities among children in Missouri dropped from **36** in 1996 to **15** in 1999, a 58% decrease. The majority of homicide firearm deaths among Missouri youths each year were black males, who continue to be at disproportionate risk.

Figure 35. Homicide Firearm Deaths by Sex and Race

Sex	1997	1998	1999
Female	2	3	3
Male	19	17	12
	21	20	15

Race	1997	1998	1999
White	6	2	2
Black	15	18	13
	21	20	15

Teen violence

14 deaths occurred due to fatal violence among Missouri adolescents in 1999.

Violent injury and death disproportionately affect children, adolescents, and young adults in the United States. Rates of homicide among youths age 15-19, reached record-high levels in the latter half of the 1980 s and continue to be among the highest ever recorded in the United States for this age group. Homicide rates for young males began to decline in 1994, dropping 34% between 1993 and 1997. Despite this encouraging trend, rates are still unacceptably high. In the United States, homicide is the leading cause of death for African-Americans age 15-24 and the second leading cause of death for Hispanic youths. (National Center for Injury Prevention and Control)

Key risk factors

Key risk factors for violence include a number of individual and social factors that increase the probability of violence during adolescence and young adulthood. Some of these factors cluster in four areas: poverty and diminished economic opportunity and exposure to violence (neighborhood), academic failure (school), poor emotional attachment to parents or caregivers, and poor supervision by parents and caregivers and exposure to violence (family), and social cognitive deficits and history of early aggression (individual). (National Center for Injury Prevention and Control)

The Missouri Youth Risk Behavior Survey 1999 reports that violent behavior among high school students in our state, continued to decline. Lower percentages of students reported carrying a gun, carrying a weapon on school property and fighting. The percentage of male students who carried a gun on one or more of the 30 days preceding the survey, dropped from 21% in 1995, to 12% in 1999, a statistically significant change.

"Many Factors, both individual and social, contribute to an individual s propensity to use violence, and many of these factors are within our power to change."

-Commission on Violence and Youth

Promising Approaches:

Individuals and organizations working to prevent firearm violence, choose and develop strategies that are specifically appropriate for them to use, depending on what aspect of the problem they would like to address. Interventions can be categorized into three basic types: educational, legal and technological/ environmental.

- *Educational programs* are often carried out in the schools, community-based organizations and physicians' offices. They emphasize prevention of weapon misuse, the risks involved with possession of a firearm, and the need for conflict resolution and anger management skills.

- *Legal measures* strive to limit access to firearms-the number and type of people eligible to own or possess firearms, as well as the types of firearms that can be manufactured, owned and carried.

- *Technological/environmental interventions*: Firearm design requirements are both a technological and a legal intervention. Environmental and technological measures are based on the premise that automatic protections are more effective than those requiring specific action by individuals.

Environmental interventions include those approaches that change the institutions and structures that surround children; for example, the reduction of violence on television. (Children s Safety Network)

***Violence Prevention Recommendations**:*

For parents:
- *Provide supervision, support and constructive activity for children and adolescents in your household.*
- *Access family therapy and parenting assistance, as necessary, for help with anger management skills, self-esteem and school problems.*

For community leaders and policy makers:
- *Support the implementation of violence prevention initiatives.*
- *Encourage programs that provide support, education and activities for youth.*
- *Support legislation that restricts access to guns by children and adolescents.*

For professionals:
- *Support and implement crisis interventions and conflict resolution programs within the schools.*

For Child Fatality Review Panels:
- *Ensure that support for victims and survivors of youth violence is available.*
- *Support proactive approaches to crime control, especially those programs that include efforts to confiscate illegally carried firearms.*

References and Resources:
- *National Center for Injury Prevention and Control .....www.cdc.gov.ncipc*
- *Harborview Injury Prevention and Research Center ....http://depts.washington.edu/hiprc*
- *Children s Safety Network .....http://research.marshfieldclinic.org/children*
- *Missouri Youth Risk Behavior Survey, 1999.. .....www.dese.state.mo.us*

Fatal Child Abuse and Neglect

Of the **56** child homicides in Missouri in 1999,
25 (45%) died at the hands of a parent or caretaker

Five of these children (20%) died of conditions of neglect.
The remaining **20** (80%) died of inflicted injuries.

"Because most of us do not understand how a parent or caretaker could bring him or herself to kill a child, we feel paralyzed and powerless to prevent future deaths…to change this situation, Americans need to hear the truth about fatal child abuse and neglect."

–U.S. Advisory Board on Child Abuse and Neglect

Note for the reader: The Missouri Child Fatality Review Program does not collect data under the specific heading of Fatal Abuse or Child Abuse. This data is reported as Circumstances of Death, which does include Shaken Baby Syndrome and Other Inflicted Injury. In order to report fatal abuse we have assessed all homicides with reference to the relationship of the perpetrator to the victim, the circumstances and other narrative information. The information necessary to report this data is now available through an in-house data collection system.

Fatal child abuse is the leading cause of injury deaths among infants in the United States under the age of one year. Fatal child abuse is defined as the death of a child at the hands of their parent or caretaker. Every year in the United States, at least 2,000 children (five a day) die at the hands of their parents and caretakers. Some 18,000 children are permanently disabled and about 142,000 are seriously injured from near-fatal abuse. Domestic violence strongly correlates with abuse fatalities. An estimated 50% of homes in which there is adult violence involve child abuse or neglect. It is well documented that child abuse and neglect are underreported. (Report of the U.S. Advisory Board on Child Abuse and Neglect)

Representative Cases:

- ***Parents and caretakers must be educated about the dangers of shaking.***

An 11-month-old female infant was in the care of her natural father, who was living with the mother. The child was found in a reduced state of consciousness and had difficulty breathing. She was rushed to a local hospital where she died of blunt impact to the head and shaking injuries to the brain.

- ***Parents must be educated about making appropriate choices in child care.***

The mother of a one-year old male left him in the care of her boyfriend while she went to visit friends. A short time later the boyfriend ran to the friend s home to tell the mother that the child had stopped breathing. The child died of blunt force abdominal injuries. The boyfriend was charged with murder.

- ***Substance abuse contributes to child abuse.***

A six-month-old male infant was beaten by her mother s paramour, while the mother was out. This infant was drug-exposed at birth. The perpetrator had a history of drug abuse.

Fatal child abuse is the second leading cause of injury death among infants in Missouri, following unintentional suffocation/strangulation. **13** of Missouri victims of fatal child abuse were infants less than one year of age. **5** were age 1-4 years.

All child abuse fatalities by age of victim	
<1 year	13
1 - 4 years	5
5 - 9 years	6
10 - 14 years	0
15 - 17 years	1

All child abuse fatalities by race and sex			
Females	13	White	9
Males	12	Black	16

All child abuse fatalities by cause	
Shaking	7
Other physical injury (includes blunt force trauma resulting from striking or throwing)	6
Intentional suffocation / strangulation	5
Firearm	1
Inflicted burn	1
Neglect	5

Shaken Baby Syndrome

The most common mechanism of child abuse fatalities in the United States is Shaken Baby Syndrome (SBS), which involves the violent shaking of an infant or young child, usually under the age of 4 years. Babies heads are large and heavy in proportion to their total body weight and their neck muscles are too weak to support such a disproportionately large head. Because a baby s brain is immature, it is more easily injured.

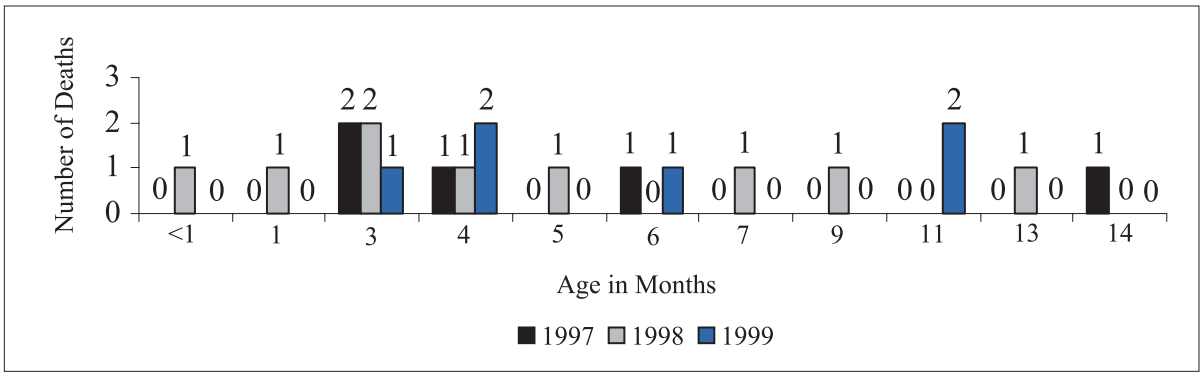
When an infant or young child is violently shaken, the brain bounces back and forth within the skull, bruising or destroying brain tissue, tearing blood vessels and often causing retinal bleeding (bleeding in the back of the eye).

Shaken Baby Syndrome involves an *extremely violent* act. Age-appropriate play, gentle shaking to awaken an unconscious child, and CPR do not cause the massive destruction seen in Shaken Baby Syndrome. Short falls from sofas, beds and changing tables, and falls associated with the caretaker falling while carrying the child, do not produce the severe brain injuries of Shaken Baby Syndrome.

Immediate consequences include a decreased level of consciousness, seizures, breathing may stop, the heart may stop and the baby may die. Research has shown that 20-25% of SBS victims die of their injuries. For survivors, research has established that a significant number of SBS cases are unrecognized and under-reported. *Long term consequences* for survivors may include physical disabilities, blindness, speech disabilities, seizures, learning disabilities and death.

Of the **20** child abuse fatalities in Missouri in 1999, **7** (35%) were victims of Shaken Baby Syndrome. **6** were infants less than one year of age. The seventh victim was injured as an infant and died in 1999, at the age of 9 years.

Figure 36. Shaken/Impact Syndrome Deaths by Age



Note: One child is not included in this chart. Although the cause of death was SBS, the child was 9 years old.

Figure 37. Shaken/Impact Syndrome Deaths by Sex and Race

Sex	1997	1998	1999
Female	1	3	4
Male	4	6	3
	5	9	7

Race	1997	1998	1999
White	3	6	3
Black	2	3	4
	5	9	7

Deliberate shaking of an infant or young child is usually the result of frustration or anger. This occurs most often when the baby won t stop crying. Other triggering events include toilet training difficulties and feeding problems.

Figure 38. Shaken/Impact Syndrome Deaths by Cause

Cause	Number of Deaths
Crying	2
Unknown	5
	7

Research has established that *males*, fathers and other male caretakers, are the most frequent perpetrators of Shaken Baby Syndrome. The third most frequent perpetrators are *child-care providers*, a large, relatively unrecognized group. (Suzanne Starling, M.D., Pediatrics, Vol. 95, No.2, February, 1995).

4 perpetrators of fatal Shaken Baby Syndrome in Missouri, in 1999, were fathers or other male caretakers. **1** was a child-care provider, **1** was a mother, and **1** perpetrator was listed as unknown.

Figure 39. Perpetrators of Shaken/Impact Syndrome Deaths

Perpetrator	Number of Deaths
Mother	1
Father	2
Mother's Paramour	2
Childcare Worker	1
Unknown	1
	7

Child neglect fatalities:
Child neglect is an act of omission, which is often fatal, due to inadequate physical protection, nutrition or health care. Neglect is sometimes apparent, as in the case of unsanitary living conditions, and sometimes nearly invisible until it is too late. Neglect is usually a slow and persistent process that damages the spirit, as well as the body of a child. Although physical abuse attracts more attention, neglect is more commonly reported as maltreatment. Children who are *chronically neglected* are at great risk for injury and death. In the case of child neglect fatalities, mothers are more likely to be the perpetrators. Child neglect fatalities are linked closely with substance abuse and mental illness. (National Committee to Prevent Child Abuse)

CFRP panels found that **25** children who died in Missouri, in 1999, suffered from *Inadequate Care.* While negligent treatment was not necessarily the primary cause of death in these cases, CFRP panels felt that inadequate care contributed to the death. Some deaths were found to be the result of a combination of factors of inadequate care.

Inadequate care or neglect			
Apparent lack of supervision	13	Oral water intoxication	0
Apparent lack of medical care	4	Delayed medical care	1
Munchausen syndrome by proxy	0	Inadequate medical attention	5
Failure to thrive (non-organic)	1	Out-of-hospital birth	0
Malnutrition	2	Other	1
Dehydration	1		

Prevention of Child Abuse

Child abuse prevention can include a wide variety of efforts, including public awareness campaigns, parent education and support services, safety education for children, and therapeutic interventions for perpetrators and victims.

The most prevalent and best-researched methods to prevent child abuse over the last 30 years, have been efforts to enhance parental capacity. Programs that assist parents, vary in duration and structure. The most promising home-based and center-based child abuse prevention programs provide services for 1-2 years. Much of the literature also suggests that early (prenatal) intervention with the first child, optimizes the effectiveness of prevention programs. (Guterman, NB, Child Maltreatment, Vol.2, Number 1, February 1996) *Home visitation* models based on the work of David Olds and colleagues, are some of the best known and clearest for measurable effects. Olds suggests that high-risk families may need to be followed long-term. (Harborview Injury Prevention and Research Center) Key components of the Olds model for effective home visitation programs include:

- Focus on low-income, first-time mothers.
- Trained, experienced nurses to make home visits.
- Home visits occur every 1-2 weeks, beginning during pregnancy and continuing until age two.
- Home visitors focus on mother s personal health and development, as well as that of the infant, involve family members and friends in the program, and assist families with other community services as needed.
- Nurses have a maximum caseload of 25 families and keep records on the families.

Prevention Recommendations:

For parents:

- *Report child abuse and neglect.*
- *Seek crisis help through the Parent Helpline (800-367-2543) or ParentLink (800-552-8522).*

For community leaders and policy makers:

- *Support and fund home-visitation child abuse prevention programs that assist parents.*
- *Enact and enforce laws that punish those who harm children.*

For professionals:

- *Support and facilitate public education programs that target male caretakers and child care providers.*
- *Expand training on recognition and reporting of child abuse and neglect.*
- *Support development and training for multi-disciplinary teams to investigate child abuse.*

For Child Fatality Review Panels:

- *The role of Child Fatality Review Program panels is critical in identifying fatal child abuse and protecting surviving children, and ensuring that the family receives appropriate services. CFRP panels provide important data that enhances our ability to identify those children who are most likely to be abused and intervene before they are harmed.*

References and Resources:

National Committee to Prevent Child Abuse .....www.ncpca.org
American Academy of Pediatrics .....www.aap.org
National Information, Support and Referral Service on Shaken Baby Syndrome .....www.capcenter.org
Harborview Injury Prevention and Research Center http://depts.washington.edu/hiprc
A Nation's Shame: Report of the U.S Advisory Board on Child Abuse and Neglect, April, 1995
Missouri Children's Trust Fund (Missouri's Foundation for Child Abuse Prevention) ctf4kids.org

Suicides

Suicide was the manner of death of
35 Missouri children in 1999,
representing a 20% increase from 1998.

"The nation must address suicide as a significant public health problem and put into place national strategies to prevent the loss of life and the suffering suicide causes... We must act now. We cannot change the past, but together we can shape a different future."

-Surgeon General David Satcher, Call to Action to Precent Suicide, 1999

Representative Case:

- ***Parents and professionals responsible for children must be educated to recognize and respond to risk factors for suicide.***

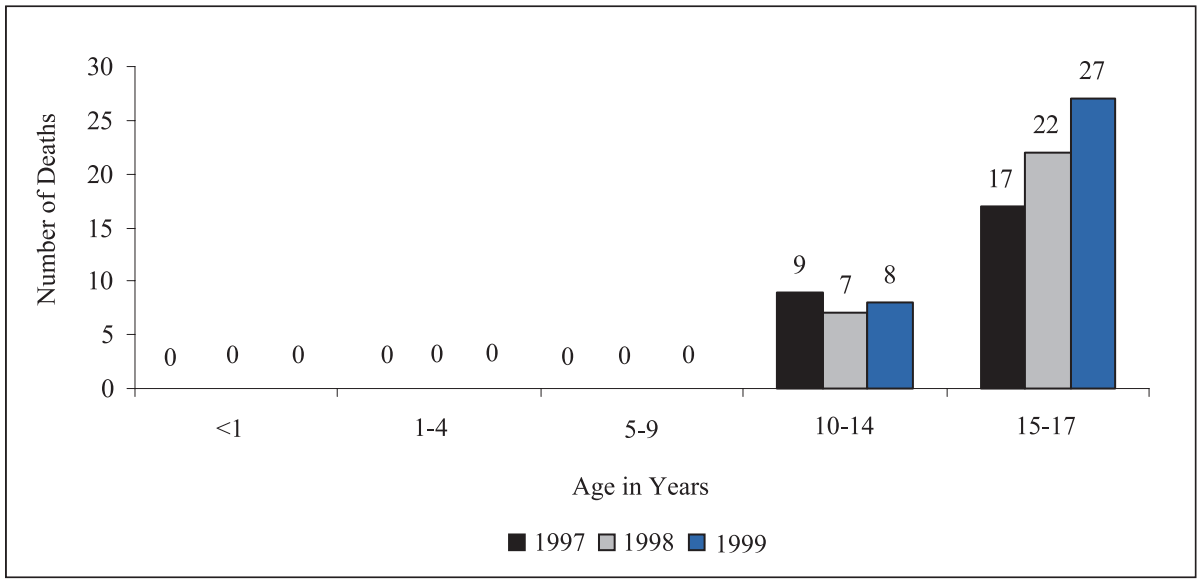
A 13-year-old was having behavior problems in school. His mother and step-father were in the process of getting a divorce. He had told another student he was thinking of suicide, but later denied that. He shot himself with a rifle at home. He was to be suspended from school that day for aggressive behavior toward another student.

In 1999, suicide was the *third leading cause* of injury death among Missouri children age 17 and under, following motor vehicle deaths and homicides.

Of the **35** children who died of self-inflicted injury in 1999, **27** (77%) were age 15-17, an increase of 23%. This represents a significant and alarming change among children in this age group. **8** of the remaining children were age 10-14.

Unfortunately, trends in Missouri reflect those observed on a national level. Between 1980 and 1996, the rate of suicide in the United States among persons aged 15-19, increased by 14%, and among children age 10-14 years by 100%. For adolescents and young adults in the United States, age 15-24, suicide is currently the third leading cause of death.

Figure 40. Suicides by Age



White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

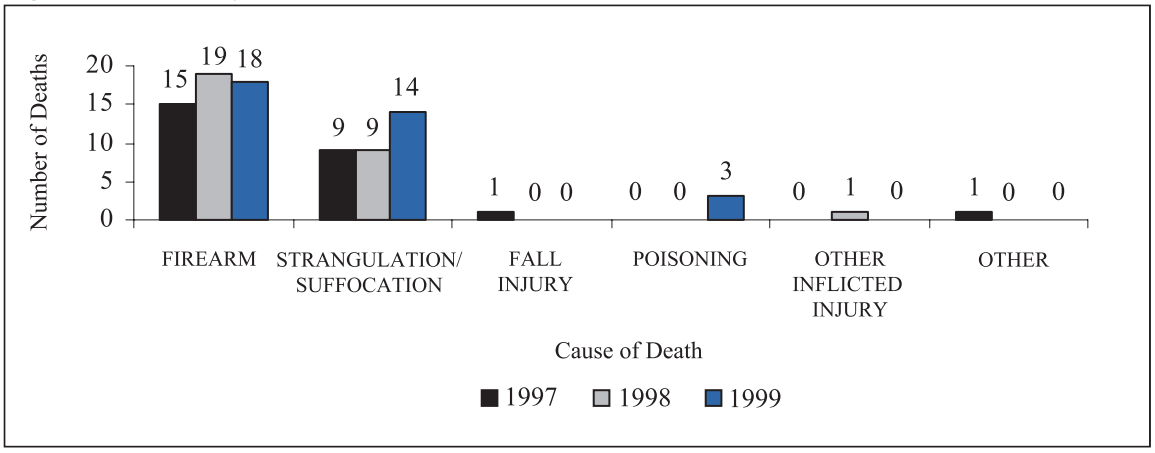
Figure 41. Suicides by Sex and Race

Sex	1997	1998	1999
Female	6	12	9
Male	20	17	26
	26	29	35

Race	1997	1998	1999
White	23	27	31
Black	3	2	4
	26	29	35

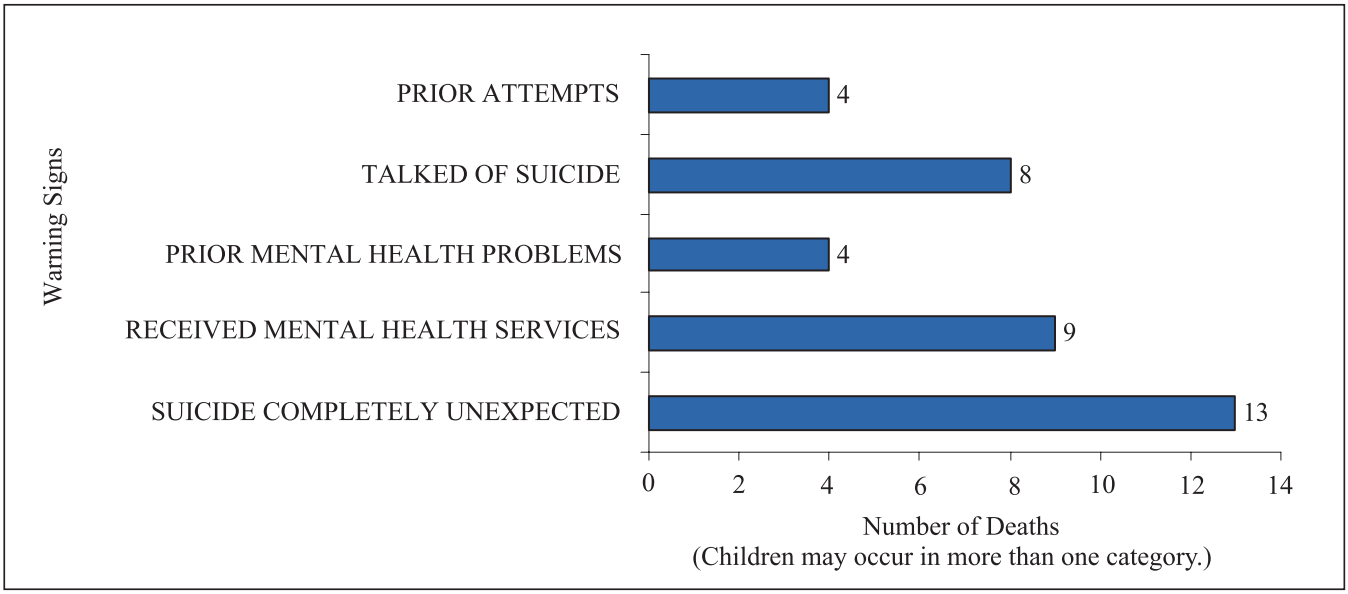
Firearms and suffocation/strangulation are the most common mechanisms of suicide among Missouri children.

Figure 42. Suicides by Mechanism



Of the **35** suicide victims age 17 and under, **26** (72%) had displayed warning signs.

Figure 43. 1999 Warning Signs of Suicide



The following information is summarized from the U.S. Public Health Service, The Surgeon General's Call to Action to Prevent Suicide, Washington D.C., 1999:

Risk and protective factors

As a society, our understanding of suicide is meager, particularly regarding the victim's state of mind. However, there are *risk factors* associated with a greater potential for suicide and suicidal behavior. The more prominent risk factors include: previous attempts; certain diagnosable mental disorders, especially depression, personality disorders, and impulse control disorders; alcohol and substance abuse, family history of suicide, and access to a lethal means, particularly firearms.

In contrast, *protective factors* are those associated with reduced potential for suicide. Protective factors involve an individual's genetic or neurobiological makeup, attitudinal and behavioral characteristics, and environmental attributes. Prevention measures that enhance resilience or protective factors are as essential as risk reduction in preventing suicide. Examples of protective factors are: family and community support, learned skills in problem solving and conflict resolution, ongoing support from medical and mental health care relationships, effective and appropriate clinical care for mental, physical, and substance abuse disorders, and restricted access to highly lethal methods of suicide.

The U.S. Surgeon General's Call to Action to Prevent Suicide, 1999

Suicide is an extremely complex problem, requiring a carefully planned, evidence-based strategy at national, state, and community levels. With this in mind, U. S. Surgeon General David Satcher issued The Surgeon General's Call to Action to Prevent Suicide, in 1999, which includes a blueprint for addressing suicide Awareness, Interventions, and Methodology, or AIM. As a framework for suicide prevention, AIM includes 15 key recommendations refined from consensus and evidence-based findings presented at the National Conference on Suicide Prevention held in Reno, Nevada in 1998. These recommendations are considered to be the essential steps toward a comprehensive national strategy for suicide prevention.

Recognizing that mental and substance abuse disorders confer the greatest risk for suicidal behavior, these recommendations suggest an important approach to preventing suicide by addressing problems of undetected and under-treated mental and substance abuse disorders in conjunction with other public health approaches. Other necessary elements include constructive public health policy, measurable overall objectives, systems to monitor and evaluate progress toward these objectives, and provision of resources for groups and agencies identified to carry out the recommendations.

Missouri s response:
Responding to the Surgeon General s Call to Action, the Missouri Department of Health, Bureau of Disabilities Prevention and Injury Control, initiated a process in August 1999 to develop a statewide multi-agency plan for suicide prevention for Missouri. Representatives of national organizations, statewide agencies and many concerned citizens met for the first time at a conference in Kansas City, to gather information and tools necessary to implement AIM as an action agenda for the state of Missouri.

The *Missouri action plan* is based upon these priority recommendations:

- Collect existing data from multiple sources, which can be used to develop goals for carefully designed awareness campaigns.
- Train school and community gatekeepers.
- Expand and support survivor groups.
- Facilitate inter-agency collaboration.

The Department of Health continues to serve as lead agency in this effort, as an expanding group of professionals and concerned citizens continues to work toward a statewide plan to be implemented in the year 2000.

"Suicide is not about death. Young people who give serious consideration to suicide don't want to die; they want an end to the incredible emotional pain they feel... Young people don't recognize that suicide is a permanent solution to a temporary problem."

-KUTO, Kids Under Twenty-One

Important facts for professionals:

- Recognition and appropriate treatment of mental and substance abuse disorders for particular high-risk age, gender and cultural groups is the most promising way to prevent suicide and suicidal behavior.
- All suicide prevention programs need to be scientifically evaluated to demonstrate whether or not they work. Most school-based, information-only, prevention programs focused solely on suicide have not been evaluated to see if they work. In fact, research suggests that such programs may actually increase distress in the young people who are most vulnerable.
- The majority of suicide attempts are expressions of extreme distress that need to be addressed, and not just a harmless bid for attention.

All Missouri citizens can make a difference in preventing suicide and suicidal behaviors.

The following recommendations are based on prevention recommendations from the National Institute of Mental Health.

Prevention Recommendations:

For parents:

- *Seek early treatment for children with behavioral problems, possible mental disorders (particularly depression and impulse-control disorders) and substance abuse problems.*
- *Limit young people s access to lethal means of suicide, particularly firearms.*

For community leaders and policy makers:

- *Support and implement school and community prevention programs designed to address suicide and suicidal behavior as part of a broader focus on mental health, coping skills in response to stress, substance abuse, and aggressive behaviors.*
- *Enact and enforce laws and policies that limit young people s access to firearms and encourages responsible firearms ownership.*

For professionals:

- *Children who have attempted suicide or displayed other warning signs should receive aggressive treatment attention.*

For Child Fatality Review Panels:

- *Support or facilitate evidence-based suicide prevention programs in your community.*
- *In reviewing a possible suicide, consider carefully the warning signs and history of the victim. Consider, also, points of early intervention that can be enhanced in your community to prevent other suicides and suicidal behaviors.*

Prevention Research and Information*:*
National Institute of Mental Health .....www.nimh.gov
American Association of Suicidology .....www.suicidology.org
Missouri Department of Health, Bureau of Disability Prevention and Injury Control

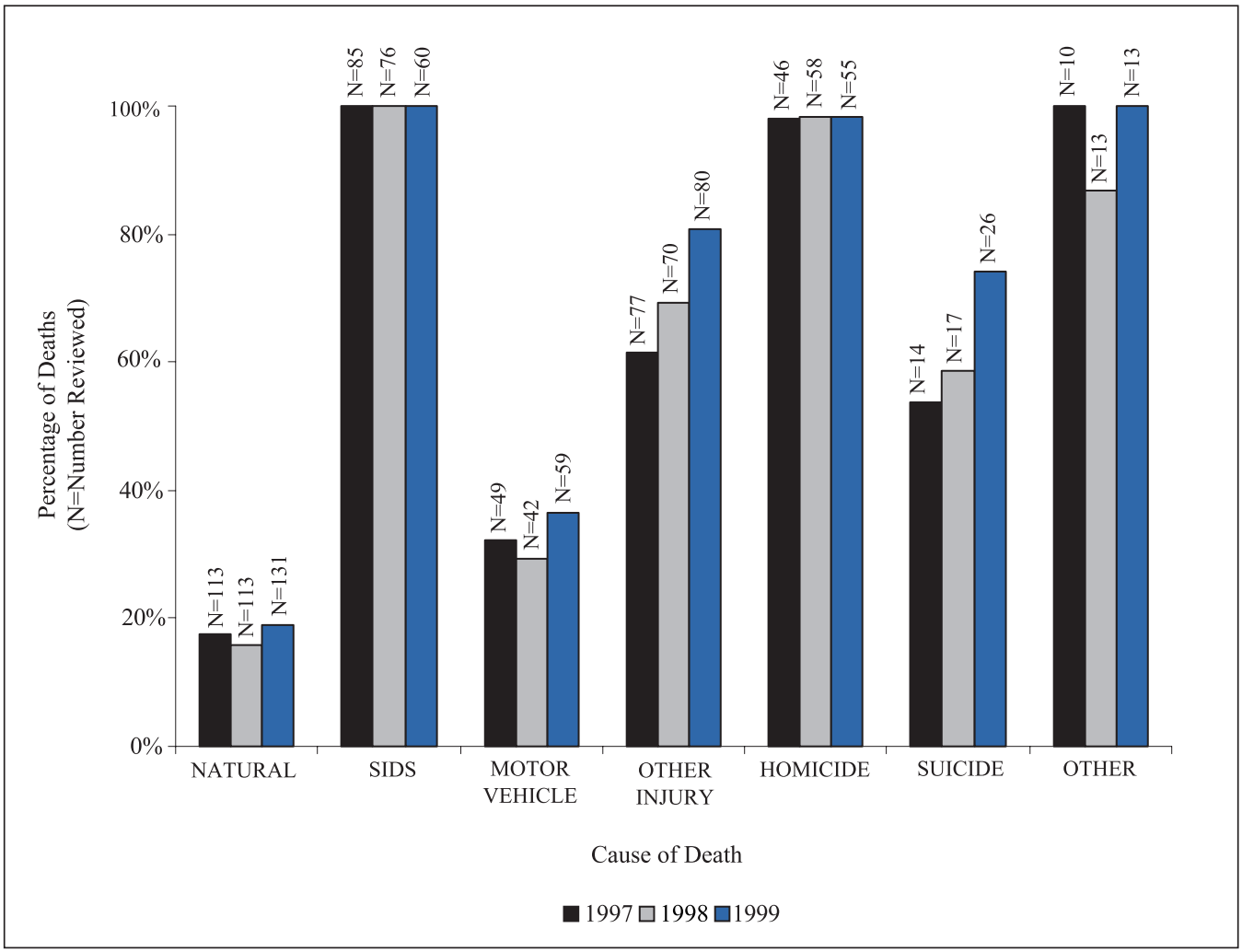
SECTION SIX:
Appendices

Appendix 1. Autopsies

The autopsy is a critical component in accurately determining the cause of death, especially in the case of SIDS. The diagnosis of SIDS requires an autopsy in order to exclude other causes of death such as shaken/impact syndrome. RSMo 194.117 requires that an autopsy be performed for all children from 1 week to 1 year of age who die in a sudden, unexplained manner. The autopsy is performed at the expense of the state.

Autopsies were performed in 38% of all children s deaths in 1999, compared to 34% in 1998 and 36% in 1997. As shown in Figure 44, autopsies were performed in 19% of natural deaths in 1999, 15% in 1998, and 17% in 1997. Autopsies were performed in 100% of SIDS deaths in 1999, 1998 and 1997; 36% of motor vehicle deaths in 1999, 29% in 1998, and 32% in 1997; 80% of other unintentional injury deaths in 1999, 69% in 1998, and 61% in 1997; 98% of homicides in 1999, 98% in 1998, and 97% in 1997; and 74% of suicides in 1999, 58% of suicides in 1998 and 53% in 1997.

Figure 44. Autopsy Rate for Child Fatalities



Appendix 2. Mandated Activities for Child Fatalities

Every county must have a multi-disciplinary child fatality review panel (114 counties and City of St. Louis).

The county panel must consist of at least the following seven core members: prosecuting attorney, coroner/medical examiner, law enforcement representative, Division of Family Services representative, public health representative, juvenile officer and emergency medical services representative. Panels may elect to have additional members.

All deaths, ages birth to 17, must be reported to the coroner/medical examiner.

Children, age one week to one year, who die in a *sudden, unexplained* manner must have an autopsy.

A state child fatality review panel must meet at least twice per year to review the program s progress and identify systemic needs and problems.

Panels must use uniform protocols and data collection forms.

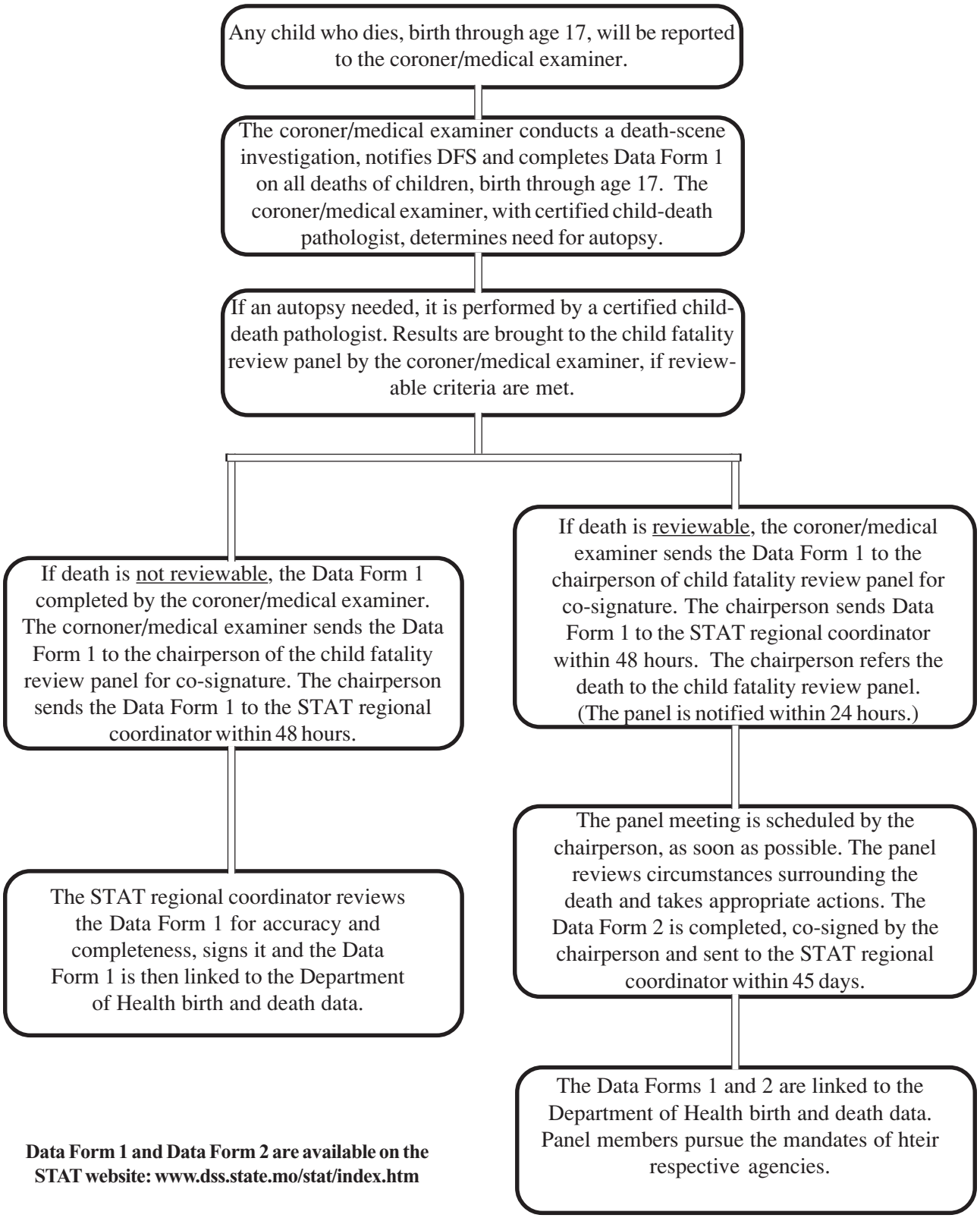
Certified child-death pathologists must perform the autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child s death meets the criteria for review, activation of the panel must occur within 24 hours of the child s death, with a meeting scheduled as soon as practical.

Appendix 3. Review Process

Process for Child Fatality Reviews



Data Form 1 and Data Form 2 are available on the STAT website: www.dss.state.mo/stat/index.htm

Appendix 4. Missouri Incident Child Deaths by County

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census
	1997	1998	1999	1997	1998	1999	1997	1998	1999	Population
ADAIR	3	4	2	0	0	1	0	1	0	4,926
ANDREW	1	3	2	1	1	2	0	2	2	4,128
ATCHISON	0	1	0	0	0	0	0	1	0	1,598
AUDRAIN	1	3	1	1	2	0	1	1	0	6,257
BARRY	6	3	5	2	1	3	4	1	3	8,278
BARTON	6	1	3	3	1	2	4	1	2	3,155
BATES	3	4	0	0	2	0	3	3	0	4,129
BENTON	0	4	1	0	3	1	0	2	0	3,540
BOLLINGER	4	4	2	1	1	1	4	1	1	3,017
BOONE	38	50	48	9	7	12	9	9	9	29,949
BUCHANAN	11	15	14	5	8	2	3	4	3	21,281
BUTLER	13	7	15	9	4	9	6	0	5	10,470
CALDWELL	2	2	3	2	0	3	2	0	1	2,268
CALLAWAY	5	7	1	4	2	0	3	4	0	9,604
CAMDEN	2	6	6	1	4	1	0	4	2	7,257
CAPE GIRARDEAU	12	6	9	6	1	3	4	1	1	15,991
CARROLL	0	1	2	0	0	1	0	1	1	2,663
CARTER	3	5	6	2	3	4	1	3	4	1,746
CASS	5	6	1	2	4	0	1	4	1	22,635
CEDAR	2	1	1	2	1	1	1	0	0	3,029
CHARITON	0	1	1	0	1	1	0	1	1	2,259
CHRISTIAN	3	5	3	0	2	1	3	4	2	13,463
CLARK	0	0	0	0	0	0	0	0	0	2,038
CLAY	14	26	29	10	17	18	7	14	13	44,917
CLINTON	3	4	1	3	3	0	1	3	0	5,163
COLE	9	13	10	3	11	7	2	10	7	17,234
COOPER	1	1	1	1	0	0	0	1	0	3,817
CRAWFORD	3	2	4	1	0	3	0	2	2	5,910
DADE	1	2	0	1	1	0	0	1	0	1,994
DALLAS	1	2	2	1	1	0	0	0	2	4,057
DAVIESS	0	1	1	0	1	1	0	1	0	2,106
DE KALB	3	0	1	0	0	1	0	0	1	2,249
DENT	2	1	4	2	0	2	2	0	3	3,719
DOUGLAS	1	1	7	0	1	5	1	1	6	3,277
DUNKLIN	5	7	7	1	4	6	1	2	3	8,803
FRANKLIN	9	16	15	8	13	12	6	10	10	26,034
GASCONADE	2	3	2	0	2	0	1	3	2	3,668
GENTRY	2	1	0	2	1	0	2	1	0	1,672
GREENE	51	48	52	14	13	14	7	8	13	52,295
GRUNDY	0	0	2	0	0	0	0	0	1	2,411
HARRISON	0	3	1	0	2	0	0	1	0	1,907
HENRY	4	3	2	1	1	1	2	1	1	5,167
HICKORY	2	0	0	2	0	0	1	0	0	1,667
HOLT	1	0	1	1	0	1	1	0	1	1,426
HOWARD	0	1	0	0	0	0	0	0	0	2,419
HOWELL	8	8	3	6	2	1	4	4	2	9,350
IRON	0	0	2	0	0	2	0	0	2	2,947

Appendix 4. Missouri Incident Child Deaths by County

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census
	1997	1998	1999	1997	1998	1999	1997	1998	1999	Population
JACKSON	182	173	171	84	72	84	46	38	49	168,471
JASPER	15	14	14	10	10	6	6	6	2	25,441
JEFFERSON	26	19	23	19	15	18	15	14	13	57,703
JOHNSON	5	3	8	1	0	4	1	2	6	11,928
KNOX	0	2	4	0	0	3	0	0	4	1,041
LACLEDE	7	2	4	3	2	3	3	1	2	8,162
LAFAYETTE	7	6	3	5	3	2	3	5	3	8,590
LAWRENCE	3	3	6	1	3	2	2	2	2	8,792
LEWIS	1	3	0	0	3	0	1	3	0	2,390
LINCOLN	8	3	10	7	3	8	6	2	8	10,550
LINN	3	1	2	0	1	2	2	1	1	3,453
LIVINGSTON	2	2	5	1	0	2	0	0	2	3,576
MCDONALD	6	7	5	4	3	0	3	4	4	5,440
MACON	4	1	1	2	0	0	2	0	0	3,779
MADISON	2	2	3	1	1	1	1	2	2	2,980
MARIES	1	3	3	0	2	2	0	3	1	2,166
MARION	7	6	0	3	2	0	2	2	0	7,590
MERCER	1	0	0	1	0	0	1	0	0	899
MILLER	3	4	3	3	1	2	2	2	3	6,321
MISSISSIPPI	0	3	1	0	2	1	0	2	0	3,989
MONITEAU	1	2	5	0	1	3	0	1	3	3,651
MONROE	1	2	4	0	1	1	0	2	1	2,484
MONTGOMERY	1	3	0	1	1	0	1	3	0	3,096
MORGAN	8	0	2	6	0	2	4	0	2	4,179
NEW MADRID	9	5	4	5	3	1	8	4	2	6,143
NEWTON	10	18	19	3	4	2	4	4	3	12,760
NODAWAY	2	1	1	0	0	1	1	0	1	4,694
OREGON	0	0	3	0	0	0	0	0	3	2,372
OSAGE	3	0	1	1	0	1	2	0	0	3,495
OZARK	0	2	0	0	2	0	0	2	0	2,214
PEMISCOT	6	1	7	5	1	4	2	0	2	6,800
PERRY	3	2	5	3	2	1	0	0	3	4,899
PETTIS	13	2	10	5	2	8	4	2	7	9,621
PHELPS	11	6	10	5	4	6	4	3	7	9,266
PIKE	2	1	3	2	0	0	1	0	2	4,412
PLATTE	8	5	6	4	3	3	3	1	1	18,125
POLK	7	5	4	3	1	2	2	4	4	6,295
PULASKI	6	5	11	3	2	6	1	3	4	11,670
PUTNAM	0	0	0	0	0	0	0	0	0	1,104
RALLS	1	1	2	0	0	2	1	0	2	2,347
RANDOLPH	2	1	7	0	0	4	0	0	4	5,912
RAY	3	5	2	2	2	2	3	4	0	6,586
REYNOLDS	3	1	0	1	0	0	3	0	0	1,759
RIPLEY	4	3	3	4	2	3	2	2	2	3,725
ST CHARLES	29	20	24	17	13	17	14	8	14	79,758
ST CLAIR	1	1	3	1	1	0	1	1	3	2,120
ST FRANCOIS	13	4	6	9	2	5	11	3	2	13,866

Appendix 4. Missouri Incident Child Deaths by County

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census
	1997	1998	1999	1997	1998	1999	1997	1998	1999	Population
ST LOUIS COUNTY	192	202	182	60	55	54	36	30	24	249,761
STE GENEVIEVE	1	2	2	0	1	0	0	1	1	4,808
SALINE	5	5	2	1	3	1	4	3	1	5,757
SCHUYLER	2	1	0	0	1	0	2	1	0	1,072
SCOTLAND	0	0	0	0	0	0	0	0	0	1,209
SCOTT	4	12	8	1	2	1	2	1	0	11,629
SHANNON	1	2	0	1	0	0	0	1	0	2,166
SHELBY	0	0	1	0	0	0	0	0	0	1,760
STODDARD	7	2	4	5	2	2	6	2	2	7,393
STONE	2	3	0	2	2	0	2	2	0	5,708
SULLIVAN	0	1	0	0	0	0	0	1	0	1,462
TANEY	4	2	1	2	1	0	2	0	0	7,138
TEXAS	1	4	3	1	2	2	1	2	1	6,065
VERNON	5	2	7	5	2	2	1	1	1	5,057
WARREN	1	1	4	1	1	2	1	0	2	6,650
WASHINGTON	1	5	1	1	4	0	1	4	0	6,804
WAYNE	1	3	0	1	1	0	1	2	0	3,059
WEBSTER	5	7	4	2	2	2	2	2	2	8,204
WORTH	1	0	0	1	0	0	1	0	0	565
WRIGHT	3	3	1	2	1	0	1	3	1	5,457
ST LOUIS CITY	186	244	212	69	52	65	32	29	36	90,197
STATE TOTAL	1,094	1,136	1,113	487	423	467	350	332	352	1,406,425

Appendix 5. Missouri Incident Child Deaths by Age, Sex and Race

Characteristic	All Deaths			Reviewed Deaths			Injury Deaths		
	1997	1998	1999	1997	1998	1999	1997	1998	1999
Age of Child									
0	600	678	664	167	166	176	31	42	45
1	37	44	34	22	23	21	11	17	14
2	28	30	21	19	17	15	17	18	10
3	27	23	21	20	13	10	14	12	7
4	23	21	9	21	10	5	16	10	6
5	23	17	12	14	7	8	13	9	5
6	16	12	18	4	8	12	3	8	11
7	20	22	12	13	14	9	11	15	9
8	10	16	17	7	5	9	4	8	11
9	14	11	9	9	7	4	8	7	4
10	17	17	16	9	10	10	10	8	9
11	22	16	18	8	11	11	12	12	9
12	16	14	21	14	9	14	10	9	12
13	20	18	16	16	11	11	14	9	9
14	30	34	24	20	21	19	16	21	21
15	39	36	46	29	22	31	29	30	37
16	71	56	72	46	26	44	62	40	61
17	81	71	83	49	43	58	69	57	72
	1,094	1,136	1,113	487	423	467	350	332	352
Sex of Child									
Male	645	657	673	306	251	302	226	205	236
Female	447	479	440	181	172	165	124	127	116
Unknown	2	0	0	0	0	0	0	0	0
	1,094	1,136	1,113	487	423	467	350	332	352
Race of Child									
White	774	781	770	322	282	304	258	251	266
Black	298	346	328	157	140	156	84	79	82
Other	22	9	11	8	1	5	8	2	3
Unknown	0	0	4	0	0	2	0	0	1
	1,094	1,136	1,113	487	423	467	350	332	352

Appendix 6. Definitions of Important Terms and Variables

Certified Death:

Death included in the Department of Health, Missouri Center for Health Statistics (MCHS) mortality file, **reported by the death certificate.**

Missouri Incident Death:

Death within Missouri of a child younger than 18 years. On the basis of data from the CFRP Data Form 1 or Data Form 2, one of the following is true:

- The child died as a result of an injury which occurred in Missouri.
- The child died as a result of a natural (non-injury) cause which occurred, or is assumed to have occurred, within Missouri. (This excludes deaths due to illness or other natural cause which occurred outside Missouri; e.g., at a non — Missouri residence.)
- The child was born in Missouri and died as a newborn (within ten days of birth) without having left the state. (Such children are included regardless of the assumed place of occurrence of the cause of death or of the residence of the child or the child s family.)

Missouri incident is determined by use of data reported on Data Form 1, and no death is considered a Missouri-incident death until Data Form 1 has been received.

CFRP Cause of Death:

Cause of death as reported on CFRP Data Forms 1 and 2. The forms include a category for natural cause, which specifies malnutrition/dehydration, delayed medical care, apperent lack of supervision and known illness (which includes congenital anomalies and perinatal conditions), Sudden Infant Death Syndrome (SIDS), sudden unexplained death (as defined elsewhere) and injuries classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP classification provides no indication of whether the injury was intentional; thus, homicide is not included as a cause in this system. The CFRP does provide for an indication of whether or not the injury was inflicted, that is, whether it occurred as a result of the action of another person, without regard to intent or purpose of the action. If the case is referred to the CFRP panel for review, Data Form 2 is completed to report the findings of the panel. The Data Form 2 report includes information on DFS findings regarding possible child abuse and neglect and information related to criminal proceedings.

Mortality File Cause of Death:

The Department of Health Mortality File lists cause of death as reported by the ICD-10 code on Missouri death certificates. The ICD-10 coding classification system includes natural causes such as various diseases, congenital anomalies, perinatal conditions and certain ill-defined conditions (which includes SIDS). The injury classification includes those identified as accidents (unintentional), those considered intentional (homicide, suicide) and those with undetermined intent. Injury deaths are further classified by the type of agent or force which caused the injury (i.e., motor vehicle crash, firearm, poisoning, burn, fall, drowning).

Appendix 6. Definitions of Important Terms and Variables

Mortality File Manner of Death:

Cause of death reported in mortality file was formatted to conform to Manner of Death variable in the death certificate. This includes six categories based on the ICD-10 code: Natural; Accident (unintentional injury); Suicide; Homicide; Undetermined; and Pending Investigation.

Sudden Infant Death Syndrome (SIDS):

Sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, **including performance of a complete autopsy, examination of the death scene and review of clinical and social history.**

- Mortality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code 7980.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from Data Form 1 and Data Form 2, as due to SIDS.

Sudden, Unexplained Death (SUD):

Sudden death of an infant less than one year of age due to unexplained cause, suggesting SIDS but not yet having the postmortem examination, scene investigation or review of social and medical history needed form SIDS designation. Defined operationally by being reported as SUD in Data Form 1.

Reviewable Death:

Death which as been reported by Data Form 1 as requiring review by the CFRP review panel, whether or not the review has yet been completed and reported. The Data Form 1 report is required for all child deaths that occur in Missouri, and includes as indication of whether a review of that death will be required. If Data Form 1 indicates a reviewable death, Data Form 2 should be completed after the review.

Reviewed Death:

Death that has been reviewed by a local CFRP review panel and reported on Data Form 2.

Mortality File County of Death:

The county, reported in the mortality file, in which the death was officially recorded. May be a Missouri or non-Missouri county.

CFRP County of Death:

The county, reported by the Data Form 1 and Data Form 2, in which the death occurred. Only deaths in Missouri are included in the CFRP database.

CFRP County of Incident:

The county, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of incident is outside the state of Missouri, the death

is by definition not a Missouri incident death. If the county is in Missouri but the county of incident is not, only identifying information (Section A of Data Form 1) is requested.

CFRP County of Residence:

The county, reported by Data Form 1 or Data Form 2, as the county of decedent s residence may be a Missouri or non-Missouri county. If the child is a newborn, the newborn s county of residence is the mother s county of residence.

CFRP Region:

Location, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred, formatted to conform to the seven geographic regions defines for the CFRP program.

Child Abuse/Neglect (CA/N):

Death for which the Division of Family Services (DFS) reports substantiated child abuse or neglect. Substantiation may result form DFS investigation or court adjudication. As a cause of death, abuse refers to physical, sexual or emotional maltreatment or injury inflicted on a child, other than accidentally, by those responsible for the child s care, custody and control, except that discipline, including spanking, administered in a reasonable manner, shall not be construed to be abuse. Neglect refers to failure by those responsible for the child s care, custody and control to provide the proper or necessary support, education, nutrition, medical care or other care necessary for the child s well-being.

Unsupervised Death:

Death for which data from Data Form 1 and Data Form 2 suggest that the decedent, due to age and/or ability, may not have had adequate supervision at time of the fatal injury or death event. Defining variables include reports that the event was unwitnessed, that the caretaker was asleep at the time (except during normal sleeping hours), that the caretaker was incapacitated due to alcohol or drugs, or that there was no adult caretaker.

Mortality File Abuse/Neglect:

Death for which the ICD-10 code in the mortality file indicates abuse or neglect. Relevant ICD-10 codes are 904.0, 967 and 968.4. these abuse/neglect deaths are usually underreported relative to those reported by DFS as substantiated child abuse or neglect.

Mortality File Homicide (death caused by another) Death:

Death due to homicide, as reported by ICD-10 codes 960-979. Homicide is not defined on Data Forms 1 or 2. Child abuse/neglect deaths as determined by DFS are not necessarily coincidental with homicides, since CA/N deaths, by definition, are committed by a caretaker who has care, custody or control of the child at the time.

Mortality File Suicide Death:

Death due to suicide, as reported by ICD-10 codes 950-959.

Appendix 6. Definitions of Important Terms and Variables

Mortality File Autopsy:

Indication from mortality file that decedent was autopsied.

CFRP Autopsy:

Indication from CFRP file that decedent was autopsied and how the autopsy was paid for.

Maltreatment Death:

Death operationally defined as being due either to homicide, as reported in the mortality file, or to substantiated child abuse/neglect, as reported by DFS.

Violent Death:

Death operationally defined as being due either to homicide (including those homicides due to child battering or other maltreatment).

Appendix 7. Missouri State Child Fatality Review Panel

Dr. Sam Gulino
Jackson County Medical Examiner s Office
Kansas City

Mary J. Browning, Director
Division of Legal Services
Jefferson City

Mike Fusselman
Randolph County Prosecuting Attorney
Moberly

Kate Mahoney
Jackson County Prosecutor s Office
Kansas City

John Lenk
Lincoln County Coroner
Troy

Dr. Mary Case
St. Louis County Medical Examiner
St. Louis

Deputy Truly Applegate
Greene County Sheriff s Department
Springfield

Major Bill Seibert
Missouri State Highway Patrol
Jefferson City

Denise Cross, Director
Division of Family Services
Jefferson City

Alinda Dennis
United Way
Kansas City

Jim Nunnelly
Kansas City

Dr. Sheila Boyd
John C. Murphy Health Center
St. Louis

Dr. Denise Dowd
Children s Mercy Hospital
Kansas City

Dr. Lori Frasier
University of Missouri Hospital
Columbia

Wayne Munkel
Cardinal Glennon Hospital
St. Louis

Patricia Schnitzer, Ph.D.
University of Missouri
Columbia

Jerry Conner
Juvenile Office
Mountain Grove

Bill Lawson
Juvenile Office
Sikeston

Bob Geigel
Emergency Medical Services
St. Louis

Anna Marie Bellatin
Mattie Rhodes Counseling Center
Kansas City

John Villanueva
Cabot Westside Clinic
Kansas City

Herb Freeman
Grandview

State Technical Assistance Team

Child Fatality Review Program

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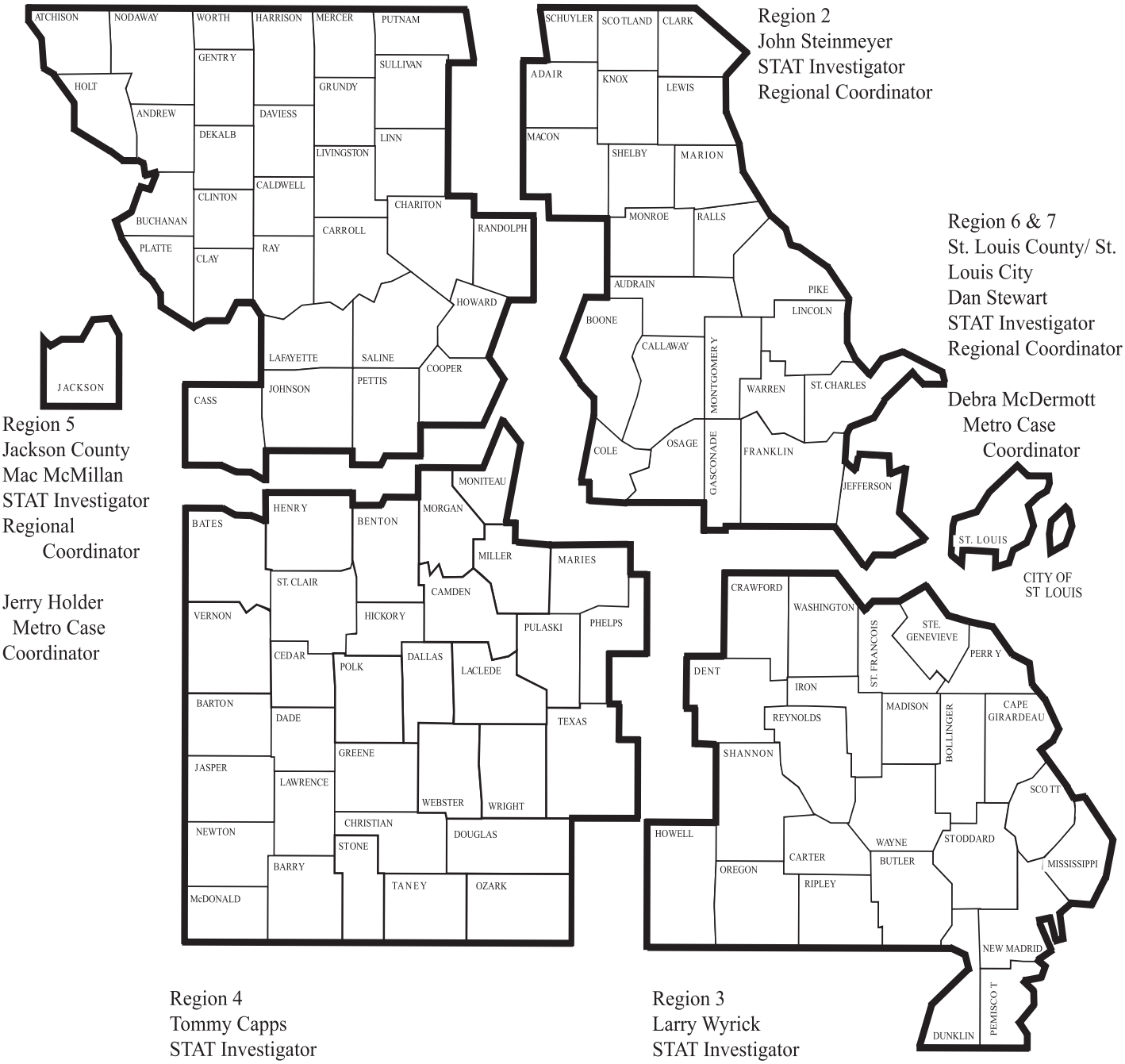
(573) 751-5980
800-487-1626

Region 1
Vern Taylor
STAT Investigator
Regional Coordinator



Region 2
John Steinmeyer
STAT Investigator
Regional Coordinator

Region 6 & 7
St. Louis County/ St. Louis City
Dan Stewart
STAT Investigator
Regional Coordinator

Debra McDermott
Metro Case Coordinator

Region 5
Jackson County
Mac McMillan
STAT Investigator
Regional Coordinator

Jerry Holder
Metro Case Coordinator

Region 4
Tommy Capps
STAT Investigator
Regional Coordinator

Region 3
Larry Wyrick
STAT Investigator
Regional Coordinator

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Missouri Department of Social Services, Research and Evaluation: Jeannette Muhlig

University of Missouri - Columbia, Department of Family and Community Medicine: Patricia Schnitzer, Ph.D.

SIDS Resources, Inc.

Missouri Division of Legal Services, State Technical Assistance Team: Maurine Hill, Theresa Murrell, Holly Otto